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ABSTRACT

The second phase of a 1977 University of Pittsburgh research study that focused on the resistance to technology in libraries, this parallel study of library school students and faculty continued the investigation to determine: (1) the extent to which technological transformation of library systems will tend to encounter resistance as preprofessional students enter the profession; (2) the behavioral, attitudinal, environmental, and demographic variables that may be significantly related to resistance by students; and (3) the extent to which the library school experience is designed to enhance the adaptability of students to professional change. The study, which involved a national survey of students and faculty of accredited U.S. library programs, was developed based on a behavioral sciences model. The first of two chapters in this report outlines the background, methodology, and research design of the study. The second chapter analyzes the results of the student mail survey, the faculty mail survey, and the institutional survey. Additional survey materials and the results of data analyses are provided in nine appendices, 12 tables, and three figures. (SD)

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ED 209772

Final Report

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DESCRIPTION OF PROJECT:

Resistance to innovation is a phenomenon of human behavior that has been the focus of numerous studies in business, education and many of the professions. No such studies of resistance by librarians have been reported in the literature, even though technological innovation in libraries is an inevitability. In 1977 a study was undertaken at the University of Pittsburgh to focus on resistance to technology in public libraries with a view to determining how such resistance may be lessened, thereby enhancing the potential expansion of library service to a broader range of citizens.

In 1979, this current study was undertaken as a followup, to continue the investigation of the resistance-to-technology phenomenon. The purpose of this second phase was to conduct a parallel study of library school students and faculty to determine (1) the extent to which technological transformations of library systems will tend to encounter resistance as pre-professional students enter the profession; (2) determine the behavioral, attitudinal, environmental and demographic variables that may be significantly related to resistance by students; (3) assess the extent to which the library school experience is designed to enhance the adaptability of students to professional change.

The study involved a national survey of students and faculty of U.S. accredited library schools, implemented by some indepth interviews. Development of the study was based on models from the behavioral sciences.

The implementation of the findings and recommendations could have significant impact on pre-service and in-service training programs and ultimately on the quality of future professional service.

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PROJECT PERSONNEL

The following personnel participated in the conduct of the study, the analysis of data and the production of the final report on the results of the study:

Donald Meyer, PhD; Professor of Psychology and Educational Research, University of Pittsburgh: conducted data analysis of mail survey.

Donald Shirey, PhD; Department of Information Science and Office of Institutional Research, University of Pittsburgh: consultant on research design and data analysis.

Ethel Tittnich, Doctoral Candidate; Information Science Department, University of Pittsburgh: analysis of library school catalogs; management of interview data during data collection process.

Douglas L. Zweizig, PhD; Senior Research Associate, King Research, Inc: Analysis of interview data and report of results of interview phase.

Lorraine Rogson, Masters student; School of Library and Information Science, University of Pittsburgh: graduate assistant, participation in the data analysis of the three surveys.

Marcella Livingston; Administrative Aide on research project: clerical and typing responsibilities for project.

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I. LIBRARY EDUCATION AND RESISTANCE TO TECHNOLOGY

A. BACKGROUND OF THE STUDY

In spite of the availability of technological resources that have the potential to expand the range and scope of library service, many libraries continue to operate today in much the same way as they have in the past, serving only a small percentage of the total community, conducting their business in the traditions of a pre-technology era. The discrepancy between the availability of technological innovation and its implementation, the "time lag", has long been an issue of concern and an area for research in business, industry and education. In 1979, a study was conducted at the University of Pittsburgh to investigate this phenomenon of resistance to technological innovation as it is manifested in libraries by librarians. The purpose of the study was to identify those factors -- demographic, attitudinal, behavioral, and organizational -- which might help to explain the nature of that resistance.

The results of the study of resistance in libraries strongly suggested that pre-service education as perceived by professional librarians has been inadequate in preparing them for the technological environment in libraries, and that library education must undergo profound change in the near future to meet the changing demands for professional service. The initial study was intended to investigate resistance to technology in libraries. This second study, of library education, was intended as a followup phase, a parallel investigation, to determine how library education may influence the attitudes of future professionals toward technological innovation.

Relationship of Phase I and Phase II Studies

The study of resistance to technological innovation in libraries (Phase 1) was an assessment of the field of practicing librarianship, based on the assumptions that (1) there is evidence in practice that resistance to technology, both personal and institutional, does indeed exist, and that (2) adaptation to innovation is essential if librarianship is to maintain and enhance its role in fulfilling societal information needs and demands. The current study, Library Education and Resistance to Technology (Phase II), was an assessment of library education to determine if library schools, regardless of their intent and statement of goals, have created an educational environment that encourages acceptance of innovation or is, instead, reinforcing resistance.

The Phase II study was primarily concerned with library school students and, secondly, with the faculty and organizational factors that may affect student levels of resistance. One result of the study was a profile of current students, faculty and library schools. The purpose was to identify a "resistance factor" in all three populations and then to assess their interrelationship. In addition to these situational variables, the resistance factor was tested against other classes of variables which were hypothesized to be related to the resistance phenomenon: attitudinal, personality and demographic factors. The instrument was a modification of the mail survey questionnaire which had been developed for the Phase I study of public librarians so that the three populations -- students, faculty and practitioners -- could be compared.

This current study of library education and technology was based on the same theoretical constructs as the Phase I study of public libraries and resistance. The complete report of that study is available through Volume I, Volume II and Volume III, Resistance to Technological Innovation in Libraries, Final Report of Project No. 475AH70073, Grant No. G007702319, U.S. Office of Education, 1979.

According to the results of the study of public librarians, only 27% of the respondents felt that they had been adequately prepared by their graduate work in library school for the technological aspect of their professional work in libraries. There was no way to know from the design of the study if those who entered the profession more recently felt themselves to be better prepared than earlier graduates; nor was it possible to determine how different requirements for performance in technological areas from library to library affected the perceptions of librarians about the adequacy of their own pre-service training. A major underlying question of this current study was: To what extent are library schools today preparing future professionals for work in the technological environment of present and future libraries?

It was an assumption of both studies that "adequately prepared" includes psychological as well as performance factors. Technology is changing so rapidly that even if one were superbly trained in the use of currently available devices, an individual would not necessarily have the psychological skills, attitudes and attributes that would allow one to accept subsequent innovations. It was not in the realm of this study to measure the technological performance of library school students and graduates to determine adequate preparation for library work. It was rather to focus on the library school environment to determine if that environment is favorable to the acceptance of technology.

It is, of course, very difficult to isolate environmental effects from each other. The climate of an organization may affect its members on many levels and in many areas. It is equally difficult to differentiate "resistance to technology" from resistance to other stimuli or, in fact, to differentiate between resistance and a generalized negativism, or between resistance and disagreement. However, in the previous study it was possible to identify a set of test items that clustered into a "resistance to technology" factor. This set of items was used again in the present study as a measure of the specific kind of behavior being investigated i.e., a generalized tendency to be resistant to technology.

The phenomenon of reistance is so dynamic in individual and organizational behavior that it affects outcomes in both obvious and subtle ways. Resistance was the unifying theme in both studies -- what is its nature, what are its antecedents, how can it be diffused? One of the questions raised by this study is that while the resistance phenomenon has specific characteriscs and is generally manifested in identifiable ways, are there variations in the quality and kind of resistance to technology that affects professional practitioners and professional school students differently? It is generally assumed, for example, that the resistance of professionals results from an affront to traditional beliefs and procedures. But students may not have acquired a history of work experiences that is being called into question -- and yet they may exhibit parallel resistant behaviors. Perhaps for students it is the failure of the educational process to meet their pre-entry expectations about librarianship, or perhaps it is that an unexpected and contradictory image of the library profession is presented in library school that elicits a resistance response. Or perhaps, on the other hand, students are not resistant to innovation; perhaps resistance is a function of time in the profession and is not a component of the educational experience. Underlying this study are two questions: (1) What more can we learn from this study about the

phenomenon of resistance, and (2) might the educational experience itself help future professionals deal with future professional change with heightened awareness and lessened resistance?

These are not the specific researchable questions that this study addressed. They are, however, the larger issues that motivated the study and directed its development. The concept of resistance, its behavioral and attitudinal components and its measurement, was discussed in the Phase I study to explicate the way in which the instruments were developed and to articulate the assumptions made about resistance. Following is a brief summary, included here to provide a theoretical background for the development of the research questions and the instruments of the current study. For a fuller discussion of the resistance phenomenon and its measurement, refer to Phase I, the Study of Resistance to Technological Innovation in Libraries, Part 1, Chapter III.

The Resistance Construct: Summary

Almost every major theory of human behavior concerns itself with the phenomenon of resistance -- the psychic mechanism to avoid that which is threatening and to exhibit avoidance behavior that can be intellectually "rationalized." According to psychoanalytic theory, resistance occurs in response to internally determined anxiety concerning the recognition of impulses of which a person is afraid. In an interpersonal context, resistance may be manifested in various ways: negative attitudes, failure to keep appointments and attempts to avoid or end the relationship prematurely, lack of prodictivity or irrelevant activity, failure to carry out decisions, and behaviors designed to gain some control in the situation.

In an organizational work setting, parallel kinds of resistant behavior occur; negativism, failure to complete tasks, absences and tardiness, lack of productivity or inappropriate activity, inability to understand or to follow directions; lack of initiative, even illness, are often not manifestations of disinterest or incompetence, but the acting out of resistance. There are sharp parallels between an individual's intrapsychic mechanism of resistnace to change and organizational behavior that manifests resistance to innovation.

From counseling theory and from the conventions of almost all personality models come some axioms that are relevant to the study of resistance.

First, the principle is proposed that life is a dynamic equilibrium. Disturbances of equilibrium are manifested as needs and wishes which motivate behavior, and the organism seeks to keep these tensions at a constant level--the principle of homeostasis which has long been recognized both by behavioral scientists and physical scientists. Resistance, when viewed in this light, becomes understandable and tolerable, and perhaps actionable.

Second is the principle that resistance is an unconscious defensive process, not a cognitive one, and that argument, reasoning and persuasion will tend to increase rather than decrease its intensity.

Thirdly, resistance can be disarmed or reduced by a "working through" process which is sometimes difficult and painful, but which can in itself be a growth experience leading to greater insight and effectiveness. It might further, then, be proposed that a profession, in "working through" its resistance to new roles and functions, might through that process find itself psychologically healthier and professionally more fully developed.

The following is a summary of the principles on which the resistance construct was developed:

. Resistance seems to originate from such common fears as loss of status, loss of control, loss of esteem and loss of independence. People become resistant, sometimes actively and sometimes passively, not only when faced with a real loss of these valued qualities, but even with the threat of such losses.

. Resistance may be misdirected, focusing on the innovation itself rather than on the true resistance-generator, often the agent of change. In the instance of resistance to technology, for example, it may be the technologist or the language of technological communication rather than the innovation itself is eliciting resistance.

. Resistance can sometimes be observed in an individual as a distinct and clearly identifiable behavior; more often it is perceived as vague negativism or interpreted as active aggression by its observer.

. One of the characteristics of resistance that makes it difficult to investigate is its variability. An individual may, at a given time, be resistant to one stimulus and not another; an individual may be resistant to a particular object or event at one time and not at another time.

. Resistance, as it is interpreted in the context of this study, is a psychological phenomenon, a psychic mechanism to avoid that which is threatening and to exhibit behavior, both verbal and nonverbal, that can be intellectually "rationalized." Resistance occurs in response to internally determined anxiety concerning the recognition of impulses of which a person is afraid. Resistance, then, is an unconscious, not a conscious, phenomenon.

Following are the assumptions about the measurement of resistance as developed for this study:

. Resistance cannot be measured directly. The most effective indirect measure is of expressed attitudes; hence the attitude component of a measurement instrument was considered as the primary resistance identifier.

. While there are some generally recognized behaviors in organizations that are classified as resistance behaviors, it was determined that questions in these sensitive areas were not appropriate for the population to which this instrument was directed.

. Some of the attributes of resistance that may be measurable are the following:

- a denial of the real or the inevitable
- a negative reaction with inappropriate affect
- expression of hostility that may be misdirected, e.g., toward the institution, the profession, etc.
- expression of professional status-insecurity
- expression of general situational dissatisfaction

Some hypotheses developed from previous studies of innovation suggested the following concepts which were used in developing this study: *

. The perceived effects of a specific innovation may be as important in explaining individual adoption of an innovation individual personality and demographic characteristics. (Assumption for the Resistance Index)

*The research literature on the adoption of innovation is reviewed in the previous study, Volume I, Chapter V and in an earlier report on the current study.

- The degree of communication integration in a social system is positively related to the rate of adoption of innovations. (Assumption for the school satisfaction items.)

- Earlier adopters are less fatalistic than later adopters. (Assumption for the locus of control variable in this study).

- Earlier adopters have more social participation than later adopters. (Assumption for degree of participation items.)

- Earlier adopters are more cosmopolitan than later adopters. (Assumption for the cosmopolite variable.)

- Earlier adopters have greater knowledge of innovations than later adopters. (Assumption for current awareness items.)

- Earlier adopters are more likely to belong to systems with modern rather than traditional norms than are later adopters. (Assumption for organizational perception items.)

- When the system's norms favor change, opinion leaders are more innovative; but when the norms are traditional, opinion leaders are not especially innovative. (Assumption for organizational perception items.)

- Satisfaction with a collective innovation-decision is positively related to the degree of participation of members of the social system in the decision. (Assumption for participation items.)

- A supportive relationship between the adoption unit (a subordinate) and the decision unit (a superior) leads to more upward communication about the innovation. (Assumption for organizational perception items.)

It is self-evident that some kinds of people are more generally resistant than others; it is not however readily evident which characteristics of personality are likely to be related to a particular kind of resistance. For the purpose of this Phase II study the following behavioral characteristics were considered in relation to resistance to technology:

- Locus of Control: the extent to which an individual perceives the contingency relationship between actions and their outcomes.

- Cosmopolite-Localite: more than occasional trips or moves from one's home environment.

- Risk-taking: the adaptability of the individual to environmental surprises.

METHODOLOGY OF THE STUDY

The basic design of this study was a sampled mail survey of all students, faculty and administrators in a 50% sample of accredited library schools in the United States, supplemented by a small sample of in-depth interviews and observations in a selected number of the schools.

The State of the Art in Library Education

One of the purposes of this study was to collect a body of data that will provide some insight into the effects of technology in libraries on library education. A related purpose was to collect descriptive information from a variety of sources which may provide the background through which to interpret and understand the data collection by the survey instruments. In addition to the three mail surveys (student, faculty and institutional questionnaires), information relative to the study was obtained from the following sources:

- The catalogs of the library schools were analyzed to see if generalized goal statements and educational intent, as projected to prospective students by way of the school catalog, could be generated. This information was useful in the development of both the survey and the interview questionnaires in pointing out issues to be addressed.

- The professional literature which concerns itself with the critical analysis of various aspects of library education and which provides a sense of the current thinking about present and future needs of library education was reviewed.

- In-depth interviews and site visits were conducted to allow the researchers to explore the opinions of students, faculty and administrators and to accumulate some descriptive information about factors which are immeasurable by the survey method.

- In order to develop the research questions and to set a framework for reading and interpreting the results of the study, the thoughts and opinions of experts in library education from a variety of perspectives were sought. Following are the background areas that were developed for this study by these outside experts:

    A. The State of the Art in Library Education (James M. Matarazzo)
    B. Education for the Librarian as Information Scientist (Robert M. Hayes)
    C. Perspectives from the Profession: An Administrator's View of Library Education (John H. Rebenack)
    D. The Need for Future Research in Library Education (Ruth M. Katz)
    E. Education for Information Science (Allen Kent)
    F. Perspectives of a Recent Graduate (Eileen Trauth)

Relationship of Phase I Study Methodology to the Development of the Phase II Study

Additional directions for this current study evolved from the results of the Phase I study on Resistance in Libraries. In the first study, a series of sixteen "resistance to technology" items were subjected to a factor analysis to determine if a resistance factor could be identified. Nine classes of items, determined to be components of resistance to technology, were developed for the Phase I questionnaire. Sixteen items made up these nine classes. On analysis, seven of those items

were found to relate strongly to the first factor extracted. For the purpose of the questionnaire developed for this Phase II study, these seven items were used to tap the "resistance to technology" factor. Five items were added to allow for greater variance. Together these 12 items made up the "Resistance Index", the criterion variable for this study.

Results of the Phase I study also indicated areas for further research, particularly with reference to the purpose of the current study, i.e., an assessment of library education. The results of the Phase I study were focal points for the design of the research questions. (The complete report of the Phase I results are available in Resistance to Technological Innovation, Part II).

The issues raised by the results of the Phase I study that follow became the basis for the survey of library school students:

- The personality variables investigated in the Phase I study did not produce significant results as related to resistance to technology. There was, however, sufficient reason to pursue an investigation of the "locus of control" and "risk-taking" variables in the current study. The strongest items in the scales used to measure these variables in the first study were used in the questionnaire for library school students.

- Attitudes towards technologists and toward technological language, as different from technology itself, were sufficiently intense to warrant the inclusion of this variable in the measurement of attitudes in library schools.

- Attitudes toward librarianship held by librarian-respondents in the Phase I study were highly favorable. This variable was included to provide a comparison between practicing and future professionals. "Status of librarianship" items were included to tap this variable.

- "Current awareness" of issues concerning libraries and technology was low among practitioners. This study sought to determine the "awareness of technology" level in library school students and faculty.

- In the Phase I study, resistance was correlated with organizational climate in terms of closeness of supervision. This variable was probed in the current study with appropriate modification, i.e., questions of participation, supervision and restrictiveness.

- The following demographic variables were correlated with resistance in the Phase I study and were included to allow comparisons: sex, age, degree of experience with sophisticated library technologies and educational background. An additional demographic variable is suggested by the literature of innovation as related to acceptance of or resistance to change: cosmopolitanism vs. localism.

- In general, librarians in the Phase I study did not see themselves as professionally ambitious nor as opinion-leaders. However, opinion leadership was correlated with resistance and therefore was included in the current study.

- In the Phase I study, librarians reported themselves to be "middle of the road" in terms of political leanings, religious beliefs, and life style descriptors. This Phase II study sought to develop a comparable profile of students to determine if and how they may differ from practitioners.

Figure 1-1. Variables Used in the Librarian Surveys, Phase I, Compared With Variables Used in the Phase II Study of Library School Students

Variable	PHASE I		PHASE II
	Mail Survey	Interview Survey	Current Study
Attitudes towards technology, societal	X	X	X
Attitudes toward technology, personal	X	X	X
Attitudes towards technologist		X	X
Perceptions of the future	X	X	X
Resistance factor	X	X	X
Work Environment (School)	X	X	X
Loyalty to administrator		X	
Professional self-perception	X	X	X
Status of librarianship		X	X
Gregariousness	X	X	
Opinion leadership		X	X
Rigidity	X	X	
Risk taking		X	X
Initiating behavior		X	
Locus of control, personal	X	X	X
Locus of control, technological		X	X
Demographics	X	X	X
State of technology	X	X	
State of technological awareness		X	X
Demographic factors	X	X	X

The Pilot Study

The purposes of the pilot study were to test the questionnaire items in the instruments for inter-item consistency and reduncancy, to enable the researchers to observe the test-taking behavior, and to obtain direct comments from respondents about (1) workability of procedures (e.g. distribution of the instrument through student and faculty mailboxes), (2) reaction to the questionnaire (e.g. time, length, clarity of directions), and (3) reaction to individual items (e.g. for offensiveness, clarity, etc.).

The classes of items and the subset items on the instrument were subjected to various statistical analyses to determine which items were the strongest measures of the variable and which items were duplicating each other in the type of data obtained. The instrument was then revised to make it stronger, more powerful, shorter and more appealing to the student and faculty respondents in the field.

The University of Pittsburgh was used as a site for the pilot study since it was the base for the research project. The School of Library and Information Science at the University of Pittsburgh has two distinct departments -- Library Science and Information Science, although students from either department can and often do take courses in the other department. The cross-over in courses occurs particularly in the technological and human services courses. This dual program structure made the school a uniquely appropriate pilot test site since students who responded to the questionnaire, as well as faculty who teach in the different departments, could be assumed to be differentially receptive to technology.

The pilot study questionnaires were distributed to the total student population (480) and the faculty of both departments (20). Results of the pilot study are appended to the second Interim Report of this study.

The Sampling Design: Mail Survey

Several approaches to sampling were considered in designing the study. The primary concerns were that the sampling strategy provide the maximum degree of representativeness and that the results be generalizable to the total population of library schools, their students and faculty. Following are the options that were considered:

Since there seemed to be enough difference in the environments of the various library schools to consider a full universe study, the "ideal" approach was to survey the total sutdent and faculty population in all of the 61 accredited library schools in the United States. This design was dismissed because of the size of the population of students -- approximately 14,000 as reported by Dean Russell Bidlack in a phone conversation. (Dr. Bidlack recently completed a study of library school populations with regard to placement).

A second approach was to survey only a portion of the student population, i.e., include only fulltime students in the study. This approach turned out to be unworkable because schools were unable to provide a uniform definition for full and parttime enrollment since the designation of credits carried as an indicator of enrollment status varies from school to school. Many students shift their status upon registering for a particular term.

In addition, this approach was unacceptable because it is inconsistent with the purpose of the study. There was no justification for the exclusion of subjects from the study because of their full or parttime status, particularly since all of the schools questioned about this issue reported that a majority of their students were enrolled on a parttime basis.

A third option was to develop a random sampling design for each of the schools and to require that each school assume responsibility for the selection of students according to the assigned formula. This plan was rejected for two reasons: first was the dependence on someone at the school to carry out the procedure and the inability of the research staff to assure that the procedures would be followed without deviation; second was the reluctance to impose this task on the schools, a task that would require considerable time and effort to locate specific students within a short period of time. The necessity to contact specific students would have placed a burden on the schools and potentially might have resulted in some refusals to participate.

The approach that was accepted was to design a stratified random sample of library schools and to consider the total populations of students and faculty of the selected schools as the population for the study. A 50% random sample of library schools was drawn (32 schools) using the following strata for selection:

First stratum: Size of school as determined by student population (Source of data: Bidlack study)*

Second stratum: Urbanicity (Population of cities, World Almanac).

*Statistical Data from the Annual Reports of Library Schools Submitted to the Committee on Accreditation of the American Library Association for 1977-78; Compiled by Russell E. Bidlack.

Third stratum: Geographic Area (Source of data: American Library Association list of accredited Library Schools; October 1979. Schools not on this list but accredited since its publication were added.

A further description of the sampling design and breakdown of schools according to these strata is included in Appendix A . These particular stratum categories were applied because (1) they are relevant variables for the purpose of the study and (2) the data for developing matrix cells were available in the literature and through general reference sources. It was not possible to use other variables (for example, the sophistication of the programatic elements relative to technology) without conducting an independent survey to collect the necessary data. The tables used to select the 32 schools are included as Appendix A.

The schools selected for inclusion were contacted by telephone to solicit their participation. All but one school agreed to participate. An alternate school that met the criteria for selection was substituted for the school that refused participation. The resultant sample size for library schools participating in the study was thirty two; the total potential student population was 5,146; the total potential faculty population was 538. The sample of library school students included all full and parttime students enrolled in the sampled school for the winter term, 1980. The faculty population included full and parttime faculty teaching in the sampled schools during the fall term, 1980.

In addition to the student and faculty surveys, each school in the sample was asked to complete a survey requesting information about the school. A similar request was made of the twenty-nine schools that were not in the sample so that the results of the school survey analysis would truly reflect the state of library education across the country.

Response Rate

The following figure shows response rates to the mail questionnaire:

Figure 1-2. Questionnaire Response

Respondent Population	Questionnaires Sent out	Questionnaires Returned	% of return
Student mail questionnaire	5169	2060	40
Faculty mail questionnaire	544	308	56.6
Institutional survey: Schools included in sample	32	30	94
Institutional survey: Schools not included in sample	29	27	93

A breakdown by school codes is included in Appendix B.

The Interview Phase

Ten schools were selected in a purposive sample to represent six general locations and variations in size, nature of program, and known orientation to technology. At each school, ten interviews were conducted: seven student interviews and three faculty interviews. Since there was no attempt to follow procedures that would produce generability, the same number of interviews were conducted at each school, thus eliminating the possibility that too few interviews would be conducted at smaller schools.

The selection of students and faculty for interviewing were made by the interviewers and the school administrators in the following manner: (1) The interviewer contacted the administrator to set a time and place for interviewing and to discuss the selection procedures. (2) The interviewer requested a student list. The total number was divided by seven; a random number from 1 to 7 was chosen as a starting point, and every Nth persons on the list was selected. These students were contacted by the interviewer to make an appointment. If the selected student was unwilling or unable to participate, the next student was called. The intervals were kept constant. (3) For the selection of faculty to participate in the interviews, the number of total faculty was divided by three and the same procedures were followed. If the selected faculty member was unable or unwilling to participate, the next name was selected, etc. Every effort was made to select faculty and students for interviewing without having selection made by the administrator who might be inclined to provide interviewees with a particular bias.

The interview questionnaire closely paralleled the mail survey questionnaire to allow for comparative data analysis. In most instances, the questions were expanded to allow for open-ended responses. In some instances, questions were added as probes in an attempt to add depth of understanding to the results.

C. THE RESEARCH DESIGN

Research Questions: Descriptive

I. Student Survey

I.A. What is the "student profile" in terms of demography?

I.B. What is the "student profile" in terms of behavioral characteristics?

I.C. What is the pattern of technology-related student behavior and attitudes in terms of educational behavior and attitudes?

I.D. What is the general student attitude toward librarianship and library school?

II. Faculty Survey

II.A. What is the faculty profile of resistance?

II.B. What is the faculty profile in terms of demography and experience?

III. Institutional Survey

III.A. Descriptive summary of institutional statistics

III.B. Descriptive summary of collected data hypothesized to be related to the institution's orientation toward technology

IV. Comparative Research Question: Are students (Phase II) and librarians (Phase I) from significantly different populations in terms of (1) resistance and (2) its predictor variables? No statistical correlations were made on the two populations since different instruments were designed for each population. Comparisons are descriptive.

Research Questions: Explanatory

I. Student Survey, Research Questions: Data derived from the direct assessment of student resistance (criterion variable) and the variables hypothesized to be predictors:

Which individual and school-related variables explain variance in the student RESISTANCE measure?

I.A. Which variables within each class of variables are the strongest predictors of Resistance?

I.B. Which classes of variables are the strongest predictors of Resistance?

I.C. Which variables are the strongest overall predictors of Resistance?

II. Faculty Survey, Research Questions: Data derived from the direct assessment of faculty resistance (criterion variable) and the variables hypothesized to be predictors of faculty resistance:

II.A. Which variables within each class of variables are the strongest predictors of Resistance?

II.B. Which classes of variables are the strongest predictors of Resistance?

II.C. Which variables are the strongest overall predictors of Resistance?

III. Institutional Survey: Is there a conceptual rationale and enough variance for any institutional variables to be a predictor of student or faculty resistance?

The Student Mail Survey: Outline of Variables

Criterion Variables and Class of Predictor Variables. The following classes of variables were those suggested by the results of the Phase I Study and those hypothesized to be related to the purposes of the Phase II Study, i.e., an assessment of resistance to technology in the environment of library education. Those instrument items which were used for the Phase II Study from the Phase I study were selected because they were the most powerful items for each of the variables. Other items were developed specifically for this study. Some of the items from the Phase I study were modified to apply to a library student population rather than a professional librarian population.

CLASS I. RESISTANCE FACTORS. This was the criterion variable which was derived from a factor analysis of resistant items included in the Phase I study. The seven-item index produced by the analysis was expanded to 15 items to allow for greater variance and to allow for possible second and third factors to emerge in further analysis. Twelve items in this class formed the Resistance Index.

CLASS II. TECHNOLOGICAL ORIENTATION. This class of predictor variables concerned the educational experience relative to technology and tapped the relationship between a generalized attitude toward technology (CLASS 1) and the attitudes that are concurrent with the library school experience (CLASS II). The ORIENTATION class of variables was assumed to have four dimensions as follows: (Each of these dimensions was treated as a separate predictor variable.)

A. Experience with technologies
B. Current state of awareness of technology in libraries
C. Attitude toward education for technology
D. Attitude toward technologists

CLASS III. DEMOGRAPHICS. This class of variables included (1) the general set of demographic variables that are assumed to have some predictive power in studies of diversified populations; (2) subjective self-report of "life-style" descriptors, probing a liberal or traditional life view; (3) subjective self report of "personality" descriptors, focusing on the ability to influence others. Each of these sub-class variables was treated independently and related to the RESISTANCE factor.

A. Age
B. Sex
C. Educational background
D. Experience in libraries
E. Life-style descriptors: (1) religiosity, (2) political leaning (3) life-style
F. Individual Personality Descriptors: opinion leadership

CLASS IV. BEHAVIORAL CHARACTERISTICS. This class of variables was partially derived from the Phase I study (Locus of Control, Risk-taking) and partially from the literature on innovativeness (Cosmopolite). The theoretical bases for the selection of these behavioral characteristics and their relationship to RESISTANCE are described earlier in this report and in the background sections of the Phase I Study.

CLASS V. PERCEPTIONS OF INSTITUTIONAL CLIMATE. This class of variables showed predictive strength in the Phase I study and is represented in the literature on organizational behavior as both crucial and actionable in the diffusion of innovation. A discussion of the assumptions that underlie the inclusion of this class of variables is contained in the background sections of the Phase I Study. This class of variables was assumed to encompass, for the purpose of this study, the following four sub-class variables which were treated independently.

A. Perceptions of the organizational environment
B. Perceptions of institutional versus individual control
C. Perceptions of faculty attitudes toward technology
D. Perceptions about librarianship (status)

CLASS VI OTHER RELATED VARIABLES

Five items were added to the questionnaire which did not fall specifically within the five major classes of variables. All items were adapted from the Phase I Study and were included for several reasons, either because (1) the item showed some relationship to resistance in the Phase I Study; (2) the item was included as a probe to uncover some explanation for a relationship between resistance and other variables in the study; or (3) the item was intended as an interest-stimulator in the questionnaire which may or may not have enough variance to be important to the analysis.

A. The question that asked students to report on the satisfaction of their library school experience was included to allow a bias in the responses to other questions to be revealed.

B. The "cartoon" question may reveal an underlying attitude, but its primary purpose was to relieve the tedium of responding to a long questionnaire.

C. The question that probed the respondent's attitude toward participating in this study was included to allow a bias toward either the task or the subject of the study to be revealed.

D. A fourth question related professional career goals with attitude toward technology.

E. This question contains an inaccurate item and was included as a check on the tendency for strongly technology-oriented respondents to give an "appropriate" response.

Definitions:

The pilot study indicated that in the context of this questionnaire, students in general had comparable connotations about the meaning of technology, i.e. that it referred to library-related technologies ranging from microforms to computer applications. It was therefore decided that a definition would not be included in the questionnaire.

The Faculty Mail Survey

Classes of Variables and Sub-class Variables. While the classes of variables in the faculty study paralled the student survey, some of the subclasses were modified as appropriate to a different respondent population.

CLASS I. RESISTANCE FACTORS (Criterion Variable, parallel to Student Survey).

- A. Resistance Index
- B. Attitude toward technology

CLASS II. EDUCATION FOR TECHNOLOGY: ORIENTATION FACTORS

- A. Areas of teaching competence and orientation
- B. Current awareness of technological changes
- C. Attitude toward technologists

CLASS III. INSTITUTIONAL/PROFESSIONAL FACTORS

- A. Perceptions of institutional climate
- B. Perceptions of librarianship/status
- C. Perceptions of faculty attitude toward technology

CLASS IV. DEMOGRAPHICS

- A. Age
- B. Sex
- C. Educational background
- D. Experience in libraries
- E. Academic experience

CLASS V. BEHAVIORAL CHARACTERISTICS

- A. Opinion leadership
- B. Cosmopolite/localite

CLASS VI. OTHER RELATED VARIABLES

- A. Reaction to humor/technology
- B. Feelings about this study
- C. Social desirability response check

The Institutional Survey

Variable Classes. The following are classes of variables and the component sub-classes assumed to be related to attitudes/resistance to technology. This phase of the survey related factors in the educational environment with the attitudes of students and faculty.

CLASS I: DEMOGRAPHIC VARIABLES

- A. Size of library school
- B. Urbanicity of the library school environment
- C. Intensity of the program, indicated by how much contact the student has with the school over what period of time

CLASS II. ORGANIZATIONAL VARIABLES

A. Status in university. The status of the library school in the University's organizational structure as evidenced by the following:

. The organizational position of the school in the University.

. The status of the school from perceptions of the University community.

. The title of the chief administrator of the school.

. The amount of sponsored project money the library school has received (on the assumption that research grant awards enhance the status of the school).

. The presence of a distinct professional library with its own professional staff.

. The presence of a post Master's program.

B. Status re technolgical capabilities. The technological achievements of the school as evidenced by the following:

. Technology facilities for primary use by library school students and faculty.

. Relationship with other technology-oriented departments in the University.

CLASS III. TECHNOLOGICAL ORIENTATION

A. Program Components

. Number of technology courses required

. Nature of outside contributions to the student experience.

. Preparation of students to engage in non-library technology work environments.

B. Activity Components

. Nature of funded research projects.

. Nature of continuing education offerings.

C. Process Components

. Changes that have taken place over the past five years.

. Future plans for changes that reflect changing technological applications to libraries.

II. RESULTS OF THE STUDY
PART A. STUDENT MAIL SURVEY

The Resistance Index

In the design of the methodology of the study, the first issue to be addressed was the development of a scale to measure resistance. In the analysis of the data, the first stage concerned the Resistance Index which would subsequently be correlated with the other variables of the study.

The Resistance Index was made up of 12 items, each one included because it reflects some attitude toward or value associated with resistance as determined from the reviews of the literature. Three additional items (#28, 29 and 30), were included as modified "projective" measures to tap an affective reaction to technology. In a later stage of the analysis, these three items were tested against the Resistance Index to determine their degree of consistency with the Resistance Index. These three items, which had multiple parts (for example, a series of objectives to be checked), were summed to produce a single score for each item.

From the summed Resistance items (Items 1-12), the respondent population was divided into three groups according to the degree of resistance evidenced by their responses. The following table shows how these groups were broken down:

Table 1
RESISTANCE GROUPS: STUDENTS

Group	% of Respondent Population	Score: Range From 12-58	
LOW RESIST.	28%	12-27	Total Student
MEDIUM RESIST.	45	28-35	Group Mean: 31:5
HIGH RESIST.	27	36-58	St. Dev.: 6.65

"Resistance" is not viewed here in an absolute sense but has been defined as relative within the population of this study. While the respondents are representative of the general student population of accredited library schools, they may not be representative of other professional populations.

The next step in the analysis was to produce a crosstabulation of each resistance item with the high-, medium- and low-resistant respondent groups. The results of this analysis give strong indication that the Resistance Index developed for this study could be considered as measurement "scale" and could there be used in further analysis as a correlate with the other variables. All the items were highly intercorrelated. Gammas ranged from .48 to .79.*

*In Items 1-12, the gamma was somewhat inflated because the item being crosstabbed was also one of the items in the Resistance Index. Since this was a part-to-whole correlation with the items included, some correlation was expected.

Responses were in the expected direction. The patterns that emerged were parallel to those that occurred in a previous study where the same items were used, suggesting that responses to these items are not idiosyncratic to one population.

One factor which does not clearly emerge in this study of library school students as it did in the previous study of library practitioners is the "social desireability" response set. The broad range of responses indicates that respondents were not concerned with giving the "correct" or professionally acceptable answer. In addition, an analysis of response patterns for individual respondents revealed that no respondent was "in the middle" on all of the questions. No further analysis was conducted to account for this response set.

The Resistance Index: Item by Item

The Resistance items are shown below. Each item is presented with its adjusted frequency distribution (to account for missing cases) and with its crosstab with the respondent-resistant groups. The first cell in the crosstab represents low resistors and a low resistance response to the particular item, i.e., the expected response. The last cell shows high resistors who responded, as expected, with a high resistance response.

The items are presented according to the way in which they were developed for the study to tap five aspects of the resistance reaction. Together these items make up Variable Class 1, the Resistance Index, which was the criterion variable for the study.

A comparison of the distributions of the three populations to whom this Resistance Index was administered (public librarians, library school students and library school faculty is included in Appendix C).

VARIABLE CLASS 1: RESISTANCE FACTOR

A. AFFECTIVE REACTIONS TO TECHNOLOGY. Seven of these items were derived from a factor analysis of a wide range of resistance items used for the previous study of public librarians. The number was expanded to 12 in the current study to allow for greater variance and to accommodate for the differing populations of the two studies. The Resistance Index was the summed scores of Items 1-12.

Item 1. "The future of our society depends on the advancement of technology."

FREQUENCY

SA	A	M	D	SD*
18	40	25	14	3

Valid Cases:2034/Missing:15

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	SA/A	M	D/SD*
LOW	81.1	14.3	4.6
MED.	57.6	26.9	15.5
HIGH	35.6	35.4	29.0

Gamma: .48
Valid Cases:1962/Missing:88**

Compared with other items, the gamma on this item is relatively low as is the percentage of "strongly disagree" responses, suggesting that even those who resist technology may recognize its social benefits. However the pattern shown in the Crosstab clearly indicates the tendency for high resistors to react differently from low resistors.

Item 2. "Technological advancements have already dehumanized our lives."

FREQUENCY

*SA	A	M	D	SD
5	24	31	35	5

Valid Cases: 2037/Missing: 13

CROSSTAB WITH RESISTANCE INDEX

RESIST GROUP	*SA/A	M	D/SD
LOW	5.9	19.5	74.6
MED.	24.1	37.6	38.2
HIGH	57.4	33.0	9.6

Gamma: -.68

The strength of the second item reflects and substantiates a theme that emerged in the previous study--that one of the basic resistance-associated perceptions concerns the depersonalizing and dehumanizing quality of technology. While the first item taps a <u>belief</u> or opinion , this second item begins to tap a <u>value</u>.

*The asterisk indicates the direction of HIGH RESISTANCE
**On all crosstabs unless otherwise indicated: Valid Cases 1962/Missing 88.
***With the large sample size used in this study, generally gammas greater than .06 were associated with tables having statistically significant (.05) chi-squares. The significance levels are not shown in the individual item tables. Any gamma greater than .06 can be assumed to reflect statistical significance

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Item 3. "Technology has the potential to control our lives."

FREQUENCY

*SA	A	M	D	SD
13	41	20	23	3

Valid Cases: 2027/Missing: 23

CROSSTAB WITH RESISTENCE INDEX

RESIST. GROUPS	*SA/A	M	D/SD
LOW	28.2	22.2	49.7
MED.	55.3	22.2	22.4
HIGH	80.0	12.6	7.4

Gamma: -.53

Another primary theme that runs through both studies concerns a perceived loss of control that is associated with technology and, as shown, appears to be related to acceptance or resistance.

Item 4. "I am going into librarianship to work with books, not machines."

FREQUENCY

*SA	A	M	D	SD
8	16	29	37	11

Valid Cases: 2034/Missing: 16

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUPS	*SA/A	M	D/SD
LOW	4.3	16.6	79.0
MED.	16.7	34.1	49.1
HIGH	53.1	33.7	13.2

Gamma: -.68

It had been anticipated that current library school students, operating out of a social-desireability response set, might tend to disagree with statement, regardless of their high or low resistance tendencies, and that those who were human services-oriented would reject it because it did not state "to work with people, not machines." The strength of this item suggested that unlike the public librarians who were the population of the previous study, library school students do not respond in the direction of the socially or professionally "correct" response.

The implication in this item is that some traditional values and beliefs about the nature of the profession are still strongly operating among library school students.

Item 7. "The use of technology in libraries will become so complicated that the user will have to be specifically trained by the librarian to use it."

FREQUENCY

*SA	A	M	D	SD
6	32	25	33	5

Valid Cases: 2036/Missing: 14

CROSS TAB WITH RESISTANCE

RESIST. GROUPS	*SA/A	M	D/SD
LOW	13.5	19.3	67.2
MED.	36.2	30.4	33.4
HIGH	67.2	21.8	10.9

Gamma: -.61

This item suggests that one of the beliefs held by high resistors is that they may be required not only to learn a complicated set of tasks and procedures, but to teach others to similarly perform. The low and middle resistors have either rejected the notion that (1) technology is complicated or (2) that users must (or are capable of) operating the technology themselves.

B. PERSONAL PERSPECTIVES OF TECHNOLOGY. These three items were included to tap a more personal view of technology as it relates to the individual.

Item 5. "I see technology as an extension of myself that enables me to see and hear better and to work more effectively.

SA	A	M	D	SD*
21	52	20	6	2

Valid Cases: 2042/Missing: 8

RESIST. GROUPS	SA/A	M	D/SD*
LOW	95.7	3.1	1.2
MED.	76.2	19.3	4.5
HIGH	41.8	38.2	20.0

Gamma: .70

As with the Phase I study, this item was strongly predictive of resistance. The concept of technology as a physical extension of one's self is suggested by the philosophy of science literature as a key factor in attitude formation. The crosstab results on this question lend support to this premise, particularly in noting the very strong tendency for low resistors to relate positively to this concept, to see technology as enabling their physical activities while high resistors reject technology as a barrier to their performance.

Item 6. "Technology gives us more control over our environment."

FREQUENCY

SA	A	M	D	SD*
14	50	25	9	2

Valid Cases: 2036/Missing: 14

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	SA/A	M	D/SD*
LOW	86.6	11.7	1.6
MED.	65.7	26.9	7.4
HIGH	42.5	34.7	22.8

Gamma: .56

The results on this item reinforce the hypothesis that loss of control is strongly associated with resistance formation. This theme reappears later in the study.

Item 9. "I think that if technology becomes an important part of the field of librarianship, interpersonal relationships will suffer."

FREQUENCY

*SA	A	M	D	SD
4	16	19	51	10

Valid Cases: 2043/Missing: 7

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	*SA/A	M	D/SD
LOW	0.7	6.7	92.6
MED.	9.5	24.4	66.2
HIGH	57.6	22.8	19.6

Gamma: -.79

This item showed the highest relationshp of any of the 15 items in this Class with the tendency toward resistance and reaffirms the results of the previous librarian study, even more strongly, that high resistors fear the disintegration of interpersonal relationships as one of the effects of technological innovation.

C. FEELINGS ABOUT TECHNOLOGY AND LIBRARY SERVICE. While there are many possible questions about the effect of technology on the professional life of librarians, the three that follow were included in this study because they showed the strongest relationship to resistance on the previous study. They were included to tap the relationship between the respondents' perception of the librarian's job security, traditional role definition, and professional commitment to the formation of a resistance attitude.

Item 8. "I worry that one day technology will reduce the number of jobs in libraries.

FREQUENCY

*SA	A	M	D	SD
6	21	23	43	7

Valid Cases: 2046/Missing: 4

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	*SA/A	M	D/SD
LOW	7.0	14.6	78.3
MED.	21.8	29.4	48.8
HIGH	57.2	23.0	19.7

Gamma: -.63

It appears that low resistors, probably those same library school students who are actively developing their technological skills in library school, do not fear job shortages while high resistors do express their concern, perhaps as a way of rationalizing their resistance. The interesting result is in the degree of difference, i.e., the unusually low level of concern expressed by low resistors.

Item 10. "Frankly, I would still prefer finding materials through use of the card catalog rather than through the mechanized devices.

FREQUENCY

*SA	A	M	D	SD
5	15	23	42	16

Valid Cases: 2044/Missing: 6

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	*SA/A	M	D/SD
LOW	2.0	11.0	87.0
MED.	12.2	25.5	62.3
HIGH	50.0	30.1	20.0

Gamma: -.71

Again the unusually high relationship shown in this item is surprising. One of the aspects of technological applications that emerges in this item is the challenge to the traditional perceptions held about the day-to-day work of the librarians.

Item 11. "Technological developments in libraries (such as computerized searches) will primarily benefit special interest groups and privileged classes of users."

FREQUENCY

*SA	A	M	D	SD
7	30	19	36	9

Valid Cases: 2042/Missing: 8

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	*SA/A	M	D/SD
LOW	9.2	14.6	76.1
MED.	32.3	23.8	43.9
HIGH	71.0	16.6	12.5

Gamma: -.66

This item too reflects the perception of highly resistant students that the social purpose of librarianship is affronted by expanded technological capabilities. It would appear from the results of these three items that the perceived effect of technology on library service is an important factor in the formation of a resistance response. It may also be that resistors use the fear of the dehumanization of library service as a rationalization for their own resistance, preferring to focus on an acceptable professional stance rather than focusing on more personal and less valued concepts.

D. ACCEPTANCE OR DENIAL OF TECHNOLOGICAL DEVELOPMENTS. This item was included to tap one manifestation of resistance, that is, to deny the existence or importance of an event as a way of discounting it.

Item 12. Technology that will really change librarianship is far in the future, certainly not in this century.

FREQUENCY

*SA	A	M	D	SD
1	5	11	54	29

Valid Cases: 2043/Missing: 7

CROSSTAB WITH RESISTANCE INDEX

RESIST. GROUP	*SA/A	M	D/SD
LOW	1.8	3.4	94.8
MED.	5.5	10.3	84.3
HIGH	10.0	20.3	69.7

Gamma: -.48

While there is some indication of difference between high and low resistors, it seems that denial is no longer possible as a manifestation of resistance to technology; even high resistors seem to accept its inevitability.

Analysis of Resistance Index. As shown on the previous item tables, the 12 Resistance Index items do descriminate between high and low resistors. The gamma scores are the measure of that differentiation.

The following table presents the inter-item correlation (Pearson correlative coefficients) of the Resistance Index items and demonstrates a high level of internal consistency in the scale.

It should be noted that gamma coefficients were used in most of the analyses because gamma is not based on the assumption of intervals but is an ordinal measure of relationships. Each of the items, when measured by gamma, showed a high relationship with the total score. The following table shows the interrelationship of items using Person correlations which assume an interval scale.

On the following table, all coeficients equal to or greater than .10 were statistically significant at $p < .05$.

TABLE 2

INTER-ITEM CORRELATIONS: RESISTANCE INDEX

ITEM NUMBER	1	2	3	4	5	6	7	8	9	10	11	12
1	1	-.11	.01	-.10	.38	.39	.02	-.10	-.25	-.24	-.11	-.13
2		1	.43	.26	-.29	-.18	.18	.29	.38	.17	.28	.12
3			1	.14	-.12	-.06	.19	.16	.23	.09	.16	.00
4				1	-.35	-.11	.34	.23	.29	.42	.30	.22
5					1	.49	-.22	-.17	-.35	-.41	-.27	-.21
6						1	-.05	-.15	-.20	-.19	-.20	-.11
7							1	.19	.18	.28	.26	.18
8								1	.39	.17	.27	.15
9									1	.41	.28	.17
10										1	.29	.25
11											1	21.
12												1

E. ABILITY TO SEE THE BREADTH OF POTENTIAL IN TECHNOLOGY. This item was included on the assmuption that low resistors would see more potential technological applications to library service than would high resistors.

Item 30. "Which of these tasks might technology help a librarian do better?"

79 alphabetizing	45 communicating	47 selecting
76 filing	56 delivering	27 interacting
90 research information	81 finding	67 fiscal managing
86 reproducing	91 cataloging	23 public relations
64 answering questions	73 acquiring	47 corresponding

Valid Cases: 2035/Missing: 15

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	NUMBER OF WORDS CHECKED				
	14-15	11-13	9-10	7-8	0-6*
LOW	30.6	27.6	19.2	11.0	11.6
MEDIUM	13.4	23.2	27.4	19.8	16.2
HIGH	5.3	13.9	19.5	25.4	35.9

Gamma: .35
Valid Cases: 1947/Missing: 103

While there is some tendency for low resistors to see more potential use for technologies than high resistors see, there seems to be a fairly high level of awareness for the general population of the study. It may be noted, however, in looking at the distribution of responses, that perceived "library" functions such as cataloging, researching and reproducing were selected with much more frequency than the "human relations" functions such as public relations, interacting and communicating -- even though technology is a factor is all of these activities.

ADDITIONAL AFFECTIVE/RESISTANCE ITEMS. These items were included in the Resistance class to further tap the affective response and to act as a check with the RESISTANCE INDEX (Items 1-12).

Item 28. Respondents were asked to rate the following library technologies:

	Positive	Neutral	Negative*
1. Microfilms	55	28	16
2. Computer Terminals	75	19	6
3. Films and Projectors	64	29	7
4. Audio and videotape	63	31	5
5. Automated catologing	62	31	7

CROSSTABS WITH RESISTANCE

28-1 Microfilms

RESIST GROUPS	Positive	Neutral	Negative	Gamma	Valid Cases	Missing
LOW	65.0	23.4	11.5			
MED.	56.0	27.2	16.0			
HIGH	45.2	33.5	21.1	.22	1939	111

28-2 Computer Terminals

LOW	93.2	5.5	1.3			
MED.	79.2	17.1	3.7			
HIGH	47.6	36.7	15.7	.66	1939	111

28-3 Films and Projectors

RESIST. GROUPS	Positive	Neutral	Negative	Gamma	Valid Cases	Missing
LOW	62.3	31.7	6.0			
MED.	63.6	29.2	7.1			
HIGH	64.2	26.1	9.8	-.01	1938	112

28-4 Audio and Videotape

LOW	65.3	30.6	4.0			
MED.	62.3	33.4	4.3			
HIGH	62.1	29.1	8.8	.06	1931	119

28-5 Automated Cataloging

LOW	81.1	16.7	2.2			
MED.	64.5	31.2	4.3			
HIGH	39.0	43.8	17.2	.33	1929	121

As was evident in the Phase I study of public libraries, high and low resistance relative to a particular technology appears to be a function of the sophistication of the technology.

Item 29. "Check the words that generally apply when you think of technology." (Adjective checklist containing 10 positive, 10 neutral and 10 negative words.)

Direction of Adjective	Number of Responses Checked											
	0	1	2	3	4	5	6	7	8	9	10	Median
Positive*	4	10	16	16	15	13	10	6	5	3	1	3.7
Neutral	2	10	18	26	23	13	6	1	0	0	0	3.3
Negative	47	24	13	6	3	2	1	1	0	0	0*	0.6

Valid Cases: 2035/Missing: 15

CROSSTABS WITH RESISTANCE

RESIST GROUPS	INDIVIDUAL SCORES		
	*0-2	3-4	5+
LOW	10.4	25.2	64.4
MED.	29.1	34.3	36.6
HIGH	54.8	31.5	13.7

Gamma: -.49

Valid Cases: 1948/Missing: 102

This item, designed as a modified projective measure, is strongly affective and taps the intensity of emotional reaction rather than the beliefs or values associated with technology. One of the premises about resistance to technology that emerges from both studies is that technology produces ambivalent feeling. It appears, in the responses to this item, that even low resistors have some negative feelings and that high resistors are likewise equivocal in their feelings. However, an affective reation seems to emerge as a strong correlate of attitudes, believes, opinions and rationalities.

SUMMARY: VARIABLE CLASS I, RESISTANCE FACTOR

The 12 item Resistance Index developed for this study shows evidence of being an effective scale to measure resistance to technology. When each item was crosstabbed with the summed score of the 12 items and the low, meduim and high respondent groups, responses moved in the direction expected. Gamma ranged from .48 to .79, suggesting that the items discriminate between low and high resistors.

Several themes showed themselves to be strongly related to the formation of a resistance response. Strongest of these was a "social" theme, the fear that technology will cause interpersonal relastionships to suffer, that it has a dehumanizing effect, that technology benefits special interest groups more that it benefits the ordinary citizen. A second theme concerns traditional beliefs about the role of the librarian and the role of the user, both of which are seen as changing in the wake of technological growth. The third theme concerned the respondent's view of technology in a personal sense and whether it is perceived as enhancing or diminishing one's control over the environment. A fourth theme concerned the inevitability of technological change. This last theme was the weakest discriminator with both high and low resistors recognizing to some extent that technogical changes in libraries is already a reality.

VARIABLE CLASS II: TECHNOLOGICAL ORIENTATION

This class of predictor variables concerns experiences and attitudes that may have preceded or be concomitant with the library school experience. The ORIENTATION class of variables was designed to include four components as indicated below. Each of the 10 items included in this class was cross-tabbed with the Resistance Index and is shown here if the gamma indicates that a relationship exists. (In the second stage of the analysis, the four componets were each treated as final variables and their sums were correlated with the Resistance Index.)

A. PREVIOUS OR CONCURRENT EXPERIENCE WITH TECHNOLOGY

Item 51d. (Self reported) degree of experience with technology.

FREQUENCY

1 NONE	2 MINIMAL	3 SOME	4 EXTENSIVE	5 EXPERT
5	32	50	13	0

Valid Cases: 2017/Missing: 33

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	1	2	3	4	5
LOW	2.0	20.9	53.8	22.5	0.7
MED.	5.2	32.7	51.0	10.9	0.1
HIGH	6.7	40.0	44.1	8.6	0.6

Gamma: -.29
Valid Cases: 1930/Missing: 120

Most respondents, both high and low resistors, reported at least minimal experience and none reported themselves as experts. It is surprising that a small number of current graduate school students reported no previous experience. The fact that even some low resistors reported no experience strengthens the assumption that the concept of "technology" would mean new or sophisticated technology to the respondent.

B. CURRENT STATE OF AWARENESS OF LIBRARY-RELATED TECHNOLOGIES.*

Item 31. Which of the following do you feel you are reasonably familiar with? Please check all those you could describe and discuss if you were asked.

83%	OCLC	16%	CLSI	30%	hologram
31	National Periodicals Center	45	bytes	38	laser
31	RLIN	52	batch	59	CRT
71	database	42	ASIS	31	solid state
43	microcards	27	nanosecond	21	fiber optics
18	CRL	16	AMICUS	80	on-line
18	NELINET	3	PNBC	47	work processing
3	NECRONET (FALSE ITEM)	30	Interactive system		

Valid Cases: 2035/Missing: 15

RESIST. GROUPS	Number of Items Checked 1-4	5-7	8-10	11-14	15-22*
LOW	11.7	14.8	21.4	25.0	26.5
MEDIUM	20.3	17.9	25.9	21.4	14.6
HIGH	30.9	27.3	18.6	16.7	6.6

Gamma: -.28
Valid Cases: 1948/Missing: 102

The most familiar term was OCLC, followed by general computer-related terms (on-line, database, CRT, batch, word processing). The lowest responses represented a lower level of awareness of regional systems designed for the implementation of technological interaction. One false item (NECRONET) was included as an accuracy-of-response check and was marked by 3% of the respondents, the same percentage that reported familiarity with PNBC.

While the pattern of responses was in the direction expected, the distributions indicated a lower level of awareness among library school students than had been expected. Twenty percent did not know the term "on-line"; 29% did not check "database." A surprising 58% were not familiar with ASIS. A further analysis of this item with might provide information to those interested in library school curricula in relation to technological developments.

*Asterisk indicates direction of HIGH AWARENESS

Item 32. Check any of the following journals or books that you have read since entering library school:

32 On Line Review	41 Journal of Library Automation
20 Datamation	9 Kent's Information Anaylis and Retrieval
12 Computer World	12 Lancaster & Fayern's Information Retrieval On-Line

Valid Cases: 2035/Missing: 15

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	NUMBER OF WORDS CHECKED			
	0	1	2-3	4-6 *
LOW	28.9	21.0	35.8	14.1
MEDIUM	44.6	22.9	27.4	5.0
HIGH	61.0	24.3	12.8	1.9

Gamma: .37
Valid Cases: 1945/Missing: 105

Higher resistors to technology also tend to avoid reading in the field. There was no suggestion in the question that such reading be a voluntary or pleasurable activity. The distributions suggest that these journals or books are seldom included as required readings in library school programs. There is no way to know if other technology-related materials are required, but the responses on the previous item suggest that little reading in technology-related matters is expected of students.

Item 33. When you read library journals, how do you feel about the technology-oriented articles? Check the one that most applies to you:

1. 37 Don't see the relevance to the work I hope to do.
2. 10 The material is boring.
3. 29 Without a background in technology the material is difficult to understand.
4. 20 The language of technology is more difficult than the technology itself.
5. 3 I enjoy and understand the material.

Valid Cases: 1921/Missing: 129

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	1	2	3	4	5*
LOW	1.1	6.3	26.1	31.3	35.2
MEDIUM	2.9	7.3	39.9	32.3	17.5
HIGH	7.2	18.2	44.0	23.2	7.4

Gamma: -.40
Valid Cases: 1945/Missing: 205

The response on this item confirm some of the attitudes revealed in the Resistance Index responses, particularly having to do with the perception of students about the traditional role of the librarian. Thirty-seven per-

*Asterisk indicates direction of HIGH AWARENESS

cent of the respondents see no "relevance to the work I hope to do." The responses also are strongly informative about the perceptions of students concerning the characteristics of the information science literature -- 59% view it as difficult and boring. The readings presented to students apparently do not spark interest, excitement, understanding or enthusiasm.

C. ATTITUDES TOWARD EDUCATION FOR TECHNOLOGY*

Item 13. "The technology courses offered in library school are most interesting and stimulating.

FREQUENCY

SA	A	M	D	SD*
7	28	41	19	6

Valid Cases: 2020/Missing: 30

CROSSTAB WITH RESISTANCE

RESIST. GROUP	SA/A	M	D/SD*
LOW	49.6	35.3	15.1
MED.	36.5	39.9	23.7
HIGH	17.1	46.3	36.8

Gamma: 34
Valid Cases: 1937/Missing: 113

While there is again a pattern of responses in the expected direction, the technology course experiences seem for 35% of the student respondents to be interesting and stimulating. Twenty-five percent responded negatively to that description. Apparently the actual course experience for the majority of students is a positive or a moderate one.

Item 14. "I believe this library school is over-emphasizing the technological aspect of librarianship.

FREQUENCY

*SA	A	M	D	SD
1	5	19	61	15

Valid Cases: 2026/Missing: 24

CROSSTAB WITH RESISTANCE

RESIST. GROUP	*SA/A	M	D/SD
LOW	2.3	9.1	88.5
MED.	4.3	16.8	78.9
HIGH	12.6	31.7	55.7

Gamma: -.49
Valid: 1945/Missing: 105

A strong majority of students reported that their library school is <u>not</u> over-emphasizing technology, suggesting perhaps that students would welcome more and more intensive preparation for technology, whether they are resistant or not.

*Asterisk indicates direction of NEGATIVE ADDITUDE/EDUCATION FOR TECHNOLOGY.

D. ATTITUDES TOWARD TECHNOLOGISTS*

Item 15. Library automation specialists, rather than librarians, should be making decisions about the technological needs of libraries.

FREQUENCY

SA	A	M	D	SD*
1	9	21	50	19

Valid Cases: 2032/Missing: 18

CROSSTAB WITH RESISTANCE

RESIST. GROUP	SA/A	M	D/SD*
LOW	7.6	19.9	72.5
MED	10.5	20.8	68.7
HIGH	14.1	23.4	62.5

Gamma: .13
Valid Cases: 1948/Missing: 102

One of the questions that emerged from the review of the library and information science literature in preparation for this study was whether librarians have delegated (or should delegate) the technological decisions for libraries to outside experts. While there is some tendency for high-resistors to be more willing delegate this decision-making, 69% of the students disagreed with this statement. A similar finding in the previous study of public libraries suggests that this is an area where both students and practitioners are strongly opinioned, affirming that "the needs of libraries are best determined by librarians."

Item 16. "Contrary to popular belief, information scientists are easy to talk to, treat library professionals as equals, and are generally compassionate people."

FREQUENCY

SA	A	M	D	SD*
4	24	56	13	3

Valid Cases: 1992/Missing: 58

CROSSTAB WITH RESISTANCE

RESIST. GROUP	SA/A	M	D/SD*
LOW	41.6	47.2	11.2
MED.	24.9	61.1	14.0
HIGH	18.4	61.6	20.0

Gamma: .27
Valid Cases: 1916/Missing: 134

This item tapped the sterotypical perception of respondents about technologists. The high level of "middle" responses suggested that for students, the image of the information scientist has not been firmly set. On a similar questionnaire item in the previous study, practicing librarian responses tended to be more negative and the middle groups smaller, as shown in distribution on this item from the previous study:

SA	A	M	D	SD
2.5	20.5	39.9	28.9	8.2

If there are negative feelings toward technologist among librarians, those feelings appear to develop and harden upon entering the profession.

*Asterisk indicates direction of NEGATIVE ATTITUDE TOWARD TECHNOLOGISTS.

Item 17. "Information Science students tend to feel superior to library science students."

FREQUENCY

*SA	A	M	D	SD
3	17	47	29	4

Valid Cases: 1982/Missing: 6.8

CROSSTAB WITH RESISTANCE

RESIST. GROUP	*SA/A	M	D/SD
LOW	18.6	38.7	42.8
MED.	16.9	51.6	31.4
HIGH	24.9	51.8	23.3

Gamma: -.20
Valid Cases: 1905/Missing: 145

This item was included to see if attitudes were being formed in library school that might result in negative perceptions of technologists and then be displaced to technology itself. While there is some variance between high and low resistors on this question, the large middle group does not seem to be negative toward information science specialists.

Item 18. "Technologists are machine-oriented; librarians are people-oriented."

*SA	A	M	D	SD
5	27	29	34	5

Valid Cases: 2014/Missing; 36

RESIST. GROUP	*SA/A	M	D/SD
LOW	13.5	24.2	62.3
MED.	28.7	32.8	38.5
HIGH	54.6	29.1	16.3

Gamma: -.51
Valid Cases: 1934/Missing: 116

Yet this item, which again reflects a stereotypical view of both technologists and librarians, was the strongest item in the set. This finding is harmonious with the finding in the Resistance Index, that the most profound issue for library school students concerns the dehumanizing effect of technology, and now the associated view that technologists tend to be machine-oriented.

In this item, there is again a significant difference between the student population of this study and the librarian population of the previous study. When asked this same question during the interview phase of the previous study (Question: Do you think that technologists are machine-oriented while librarians are people oriented?), 85% of the respondents said that the statement is generally as partially true. Only 15% said the statement is untrue.

SUMMARY VARIABLE CLASS II: TECHNOLOGICAL ORIENTATION

Most library school students reported that they have had some experience with technology, but 37% reported no or minimal experience prior to coming to graduate school. Since it is highly unlikely that students in 1980 would have had little exposure to the generally accepted technologies, the implication here is that technology is interpreted as meaning computer-related devices.

Students showed a moderate level of awareness of terms related to computerized library service and a very low level of awareness of the agencies and systems that have grown up to deliver library service through technological means. Students generally enjoy and appreciate their technology-related courses but do little reading in the professional literature. They find the library-related technology literature irrelevant, boring and difficult.

Attitudes of library students toward technologists seem to be open and flexible, in contrast to professional librarians who tend to view information scientists as lacking in concern for human beings.

In general, on all four components of this class of variables, high and low resistors responded to the individual items in the expected direction. When each item was crosstabbed with the Resistance index, gammas ranged from .13 to .51. The strongest relation was shown in the item that asked if technologists are machine-oriented while librarians are people-oriented.

VARIABLE CLASS III: DEMOGRAPHICS AND DESCRIPTORS

This class of variables includes (1) the general set of demographic variables that are assumed to have some predictive power in studies of diversified populations; (2) subjective self-report of "life-style" descriptors, probing a liberal or traditional life view; (3) subjective self report of "personality" descriptors, focusing on the ability to influence others. Each of these sub-class variables was treated independently and related to the RESISTANCE factor.

A. AGE

YEARS	DISTRIBUTION
24 of less	21%
25-27	21
28-31	18
32-38	21
39 or more	19

Valid Cases: 2014/Missing: 36

The results of the crosstab with the Resistance Index showed no relationship between resistance and age. The mean age across the three resistance groups was 31, the same for all the groups. This is a different finding from the study of practicing librarians where a larger percent of younger respondents tended to be in the least resistant group while older respondents tended to fall in the group that was most resistant to technology. It is self evident that practitioners are older than students, but the indication is that future professionals will be less resistant than current practitioners. What we don't know is whether today's students will tend to become more resistant as they get older, that is, whether resistance is a function of age.

B. SEX

	DISTRIBUTIONS	
	STUDENTS	LIBRARIANS*
MALE	18%	20.1
FEMALE	81	79.9

No relationship was shown between sex and resistance, in contrast to the study of public librarians which showed a larger percentage of females included in the resistant groups and a larger percentage of male in the group of non-resistant respondent.

*Data from previous study

C. EDUCATIONAL BACKGROUND

Since many respondents checked more than one choice of responses presented and did not limit response to their primary area of study, it was not possible to analyze this item. It seems that undergraduate education can no longer be clearly delineated into traditional humanities, science and math, and social science concentrations for many students.

D. EXPERIENCE IN LIBRARIES

Item. 51a. "Worked in a library?"

YES	82
NO	18

Valid Cases: 2026/Missing: 24

No relationship was shown between work experience in a library and the Resistance Index.

Item 51b. "If yes, how long (nearest year)?"

1. 24 Less than 1 year
2. 17 1-2 years
3. 29 3-5 years
4. 21 6-10 years
5. 7 more than 10 years

Valid Cases: 1648/Missing: 402

Item 51c. "In what capacity?"

Many respondents checked more than one response on this item. Item could not be analyzed.

E. LIFE STLYE DESCRIPTORS: (1) Religiosity, (2) Lifestyle, (3) Political leaning

Item 52. "How important is formal religion in your life?"

The following chart shows the distribution of student responses in the current study as compared with the previous study of librarians.

	DISTRIBUTIONS	
	STUDENT RESPONSES	LIBRARIANS* RESPONSES
Very important	25	22.6
Moderately important	24	21.6
Slightly important	18	17.7
Not at all important	30	35.4
Can't answer at this time	3	2.6

No significant relationship between religiosity and resistance was shown on either study.

*Data from previous study of public librarians.

Item 53. "Would you describe your lifestyle as:

	DISTRIBUTIONS	
	STUDENT RESPONSES	LIBRARIAN* RESPONSE
Traditional	14	15.9
Moderately traditional	20	44.0
In Between	8	5.8
Somewhat non-traditional	28	26.1
Non-traditional	10	8.2

From these results it would seem that students do not report themselves as traditional as practitioners but again there is no way to know if this is a function of age or if characteristics of people being attracted to librarianship are changing.

No relationship was shown between self-reported lifestyle and the Resistance Index.

Item 54. "How do you feel about: "

	1 very positive	2 indecisive	3 definitely opposed
welfare	30	52	18
abortion	53	23	24
capital punishment abolishment	30	35	35
total access to all library materials by children	53	29	18

Valid Cases: 1992/Missing: 58

This question had been redesigned from the librarian study so the results cannot be presented in the same format. Librarians' responses were distributed as follows:

Somewhat of very Liberal	Middle of the Road	Somewhat or Very Conservative
59.9	26.1	14.0

The indications are that students tend to be significantly more moderate and conservative than their professional counterparts. It is noteworthy that 47% of students voiced their opinion against free access to library materials by children.

On neither study was there a relationship shown between political learning and the Resistance Index.

*Data from previous study

F. PERSONALITY DESCRIPTOR: Opinion leadership.

Item 19. "I see myself as a "pacesetter", a leader of opinion, with my peers."

FREQUENCY

SA	A	M	D	SD
5	31	37	25	2

Valid Cases: 2039/Missing: 11

CROSSTAB WITH RESISTANCE

RESIST. GROUP	SA/A	M	D/SD
LOW	43,9	36.4	19.8
MED.	32.3	38.4	29.3
HIGH	31.0	38.4	30.7

Gamma: .15
Valid Cases: 1957/Missing: 93

While there is a low correlation shown in this item, there is nevertheless a trend that suggests that opinion leaders tend to fall in the low resistance group. The reverse was true for practicing librarians; opinion leaders tended to fall in the high resistance group.

Item 20. "I see myself as a future administrator or as having a position of influence and leadership in librarianship."

FREQUENCY

SA	A	M	D	SD
10	43	27	18	2

Valid Cases: 2036/Missing: 14

CROSSTAB WITH RESISTANCE

RESIST. GROUP	SA/A	M	D/SD
LOW	61.8	24.5	13.7
MED	50.0	28.3	21.7
HIGH	43.9	29.7	26.3

Gamma: .20
Valid Cases: 1952/Missing: 98

The pattern of responses in Item 20 is in agreement with Item 19 with opinion leadership tending to be higher in the non-resistant group. Low resistors are more likely to see themselves as assuming leadership roles in the profession.

SUMMARY: VARIABLE CLASS III, DEMOGRAPHICS AND DESCRIPTORS

There was little relationship shown between the Resistance Index and the demographic/descriptor variables against which it was crosstabbed. There were, however, indications suggested by the patterns of response on the items measuring opinion leadership that people who fall into the resistant group see themselves neither as peer leader nor as future professional leaders.

The demographic variables were compared with the findings of the study of public librarians to see if the characteristics of present librarians will tend to remain constant as new professionals move into the field. From the findings of the two studies, the following trends can be discovered:

- The male-female radio (about 20/80) is likely to continue, at least as current students enter the field.

- Most library school students (82%) have worked in a library either before or during their graduate school years. Seventy percent worked for five years or less; about 28% have been engaged in library service for six or more years. The median age of library school students is 29 years. Almost 20% are over 39.

- Half of library school students describe themselves as religious, slightly more than the findings of the librarian study (44%). But librarians are more traditional in their lifestyle (60%) than are students (34%). Students seem to be more politically moderate and conservative than practitioners; 60% of the practitioners in the previous study reported that they consider themselves to be liberal.

- Opinion leadership was related to resistance in both studies but showed reverse correlations with practitioners. In the study of librarians, opinion leadership was related to resistance to technology while with the student population, it was related to low resistance.

- The most noticable difference between the two populations concerns the relationship of age and sex to resistance. In the librarian study, older and female respondents tended to fall into the resistant group. In the student survey, there is no evidence that age and sex correlates with resistance to technology.

VARIABLE CLASS IV: BEHAVIORAL CHARACTERISTICS

This class of variables was partially derived from the previous study (Locus of Control, Risk-taking) and partially from the literature on innovativeness (Cosmopolite). The theoretical bases for the selection of these behavioral characteristics and their relationship to resistance are described in earlier reports and in the background sections of the previous study. The following are sub-class behavioral variables which were treated as independent variables and correlated with the Resistance Index.

The Locus of Control variable was made up of two parts: (1) a generalized view of life as self-determined or other-determined (items modified from the Rotter scale); (2) a set of items in the same form and pattern as the Rotter items but concerned with technological events rather than with general life events. These two aspects of Locus of Control were treated as separate variables.

			FREQUENCY DISTRIBUTIONS
A. LOCUS OF CONTROL: PERSONAL			
Item	36a.	Becoming a success is a matter of hard work; luck has little or nothing to do with it.	39 *
	b.	Getting a good job depends mainly on being in the right place at the right time.	61
Item	37a.	Leadership positions tend to go to capable people in who deserve being chosen.	49 *
	b.	It's hard to know why some people get leadership positions and others don't; ability doesn't seem to be the important factor.	50
Item	38a.	People who don't do well in life often work hard, but the breaks just don't come their way.	53
Item	b.	Some people just don't use the breaks that come their way. If they don't do well, it's their own fault.	47 *
Item	39a.	I have often found that what is going to happen will happen.	21
	b.	Trusting to fate has never turned out as well as making a decision to take a definite course of action.	79 *
Item	40a.	What happens to me is my own doing.	76 *
	b.	Sometimes I feel that I don't have enough control over the direction my life is taking.	24

Valid Cases: 1983/Missing: 67

*Asterisk indicates direction of INTERNAL CONTROL

CROSSTAB WITH RESISTANCE
(Sum of 5 Locus items)

RESIST. GROUPS	SCORE RANGE: 5 to 10				
	5-6	7	8	9	10*
LOW	9.0	19.6	25.8	29.2	16.4
MEDIUM	14.2	23.9	27.5	22.2	12.1
HIGH	25.0	26.8	24.2	19.3	4.7

Gamma: .25
Valid Cases: 1899/Missing: 151

One of the problems with this scale is that the "correct" answer is sometimes apparent, particularly to an educated population. The tendency to give self-enhancing responses may act to deminish the power of the scale. There are, however, indications that this variable is related to resistance. The pattern of responses shows the tendency for individuals who fall in the resistant group toward external-control and individuals in the low resistant group toward an internal locus.

B. LOCUS OF CONTROL: TECHNOLOGICAL

Item 41a.	I make use of gadgets and tools in my life and I feel that they make my life easier and better.	85 *
b.	Gadgets tend to break or not work properly and this leaves me frustrated.	15
Item 42a.	Computers will enable people to have more control over their lives.	76 *
b.	Computers may ultimately control the lives of human beings.	24
Item 43a.	Sometimes I think human beings have gone too far in trying to control nature.	46
b.	I believe that human beings can and should pursue all knowledge and develop all the technology that we are capable of doing.	54 *

Valid Cases: 1992/Missing: 58

CROSSTAB WITH RESISTANCE
(Sum of 3 Locus items)

RESIST. GROUPS	SCORE RANGE: 3 to 6			
	3	4	5	6*
LOW	.3	2.6	27.9	69.4
MEDIUM	2.7	15.5	39.9	41.9
HIGH	15.5	36.9	30.8	16.9

Gamma: .63
Valid Cases: 1914/Missing: 136

This variable showed the strongest relationship to the Resistance Index, confirming the strength of the control-related items in the Resistance Index. The perception that technology has the power to control our lives seems to be strongly associated with resistance, while non-resistant people see technology as giving more power to the individual to control the environment. These differing perceptions seem to discriminate high and low resistors more accurately than do other variables.

C. Risk taking was not related to resistance to technology.

D. Cosmopolitarism as measured by foreign travel and variety of places lived was not significantly related to resistance.

SUMMARY, VARIABLE CLASS IV: BEHAVIORAL CHARACTERISTICS

Two of the behavioral characteristics that were involved in the design of the study, risk-taking and cosmopolitarism, did not correlate with resistance, even though there are suggestions in the behavioral science literature that these factors may contribute to the tendency for an individual to resist change. This finding parallels the results of the previous study of public librarians where other personality factors were tested for their relationship to resistance. From these two studies the conclusions may be drawn that (1) resistance to technology is not a function of personality and (2) that, in fact, there is no clearly identifiable "librarian personality."

The one behavioral characteristic that does seem to relate to resistance is locus of control, the perception of the individual of either being in control of environment and events or being at the mercy of some external force. For the "external control" person, veiwing life as being directed by fate, destiny, God, etc., a new external power may now be added -- technology.

VARIABLE CLASS V: PERCEPTIONS OF INSTITUTIONAL CLIMATE

Perceptions of Institutional Climate. This class of variables showed predictive strength in the previous study of public libraries and is presented in the literature on organizational behavior as both crucial and actionable in the diffusion of innovation. A discussion of the hypotheses that underlie the inclusion of this class of variables is contained in the background sections of the Study of Resistance to Technology in Public Libraries. This class of variables is assumed to encompass, for the purpose of this study, the following four components which were treated as independent variables.

A. PERCEPTIONS OF THE ORGANIZATIONAL ENVIRONMENT

Item 47. "From each of the following pairs, check the one word that most closely describes your library school as you see it."

DISTRIBUTIONS

1. a 26 authoritarian
   b 74 participatory
2. a 80 open
   b 20 closed
3. a 50 innovative
   b 50 traditional
4. a 81 social
   b 19 isolating
5. a 29 restrictive
   b 71 permissive

Valid Cases: 1919/Missing: 131

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	SCORE RANGE: 5-10				
	5-6	7	8	9	10*
LOW	11.2	7.7	13.6	27.8	39.8
MEDIUM	12.3	10.6	12.0	29.7	35.4
HIGH	18.6	8.0	14.1	28.8	30.4

Gamma: .11
Valid Cases: 1847/Missing Cases: 203

In the study of public librarians, the findings indicated that the restrictiveness of the organizational environment is a significant factor in the generation of a resistant reaction to innovation. This item was included in the current study to see if library school environments were perceived by students in similar ways to the perceptions of practitioners about their library work environments. In comparing the results of this study with a parallel question asked of librarians in the interview phase of the previous study, it would appear that library schools are not only seen as more restrictive, but as more traditional and less innovative than the library itself, as the following shows:

*Asterisk indicated direction of OPEN CLIMATE

RESPONSES OF PUBLIC LIBRARIANS*

"Which of the following pair of words describe your library as you see it."

1. 36 authoritarian
   62 participatory

2. 91 open
   9 close

3. 70 innovative
   27 traditional

4. 89
   11 isolating

5. 74 people oriented
   22 task oriented

While the gamma on the crosstab shown above suggests that the effect of a restrictive organizational environment in producing resistance in students is not as strong as it is on practitioners, the pattern in the crosstab suggests that low resistors and high resistors do vary in their perceptions about the environment in which they operate. There are indications that while students may expect school to be a restrictive experience, the effect of the work environment in the professional setting will become a strong factor in the generation of resistance.

A further question was suggested by the distributions of student responses on the "traditional" versus "innovative" item. We wanted to know if the 50% who saw their school as traditional and the 50% who saw their school an innovative were discriminating between schools. The next question that suggested itself was whether a crosstab of the Resistance Index by individual schools would help to further identify school-related factors that might be associated with resistance. The results of these analyses are presented further on in this report under Results of Institutional Survey so that these variables may be seen as they relate to other institutional factors.

B. PERCEPTIONS OF INSTITUTIONAL VERSUS INDIVIDUAL CONTROL

Item 21. "Students have a real voice in decision making on student-related matters in this library school."

SA	A	M	D	SD
5	32	36	21	6

Valid Cases: 2013/Missing: 37

Item 22. "There is much opportunity for independent work that allows students to purse their own interest."

SA	A	M	D	SD
9	43	25	19	4

Valid Cases: 2032/Missing: 18

*Data from previous study.

Item 23. "Except for a few requirements, students are free to plan their own curriculum."

SA	A	M	D	SD
14	46	17	19	4

Valid Cases: 2036/Missing: 14

The low gammas on these three items do not suggest a relationship with resistance, yet there is a faint relationship pattern shown in the responses, i.e., low resistors report a higher perception of student participation than do high resistors on all three items.

C. PERCEPTIONS OF FACULTY ATTITUDES TOWARD TECHNOLOGY

Item 24. "The faculty of this school are generally up-to-date in technological developments as they occur.

SA	A	M	D	SD
15	56	22	6	2

Valid Cases: 2032/Missing: 18

There was no significant relationship shown between perceptions of faculty awareness of technological developments and resistance in students. In fact, this item did not discriminate between the three student groups. Across the three groups there was strong agreement that faculty are up-to-date in technological changes.

Item 25. "The faculty of this school stress human services rather than technology."

SA	A	M	D	SD
5	37	45	11	1

Valid Cases: 2025/Missing: 27

No significant relationship with resistance was shown. There was some greater tendency for high resistors to report that the faculty stress human services than for low resistors but the spread between the three groups was small: LOW, 39.9; MEDIUM, 40.9; HIGH, 49.2.

D. PERCEPTIONS OF THE STATUS OF LIBRARIANSHIP

No significant relationship was shown between student perceptions of the status of librarianship and the Resistance Index. The distributions on the four "status" items are shown below, along with comparable data from the study of public librarians as information about possible changing attitudes towards librarianship as new professionals are about to enter the field.

Item 26. "Librarianship is being accepted as a respectful profession more and more as time goes on:"

	SA	A	M	D	SD
STUDENTS	9	44	29	16	2
LIBRARIANS*	20	35	20	20	5

There was very little variation between the three groups on this item, although low resistors did tend to respond more favorably to librarianship than to did high resistors: LOW, 56.2; MEDIUM, 52; HIGH, 50.8.

Item 27. "Librarianship as a profession is limited in outlook."

	SA	A	M	D	SD
STUDENTS	3	15	20	46	15
LIBRARIANS *	6	28	17	27	22

While there was no significant relationship shown with resistance, again low resistors were more favorable to librarianship than high resistors: LOW, 15.9; MEDIUM, 16.6; HIGH, 24.4.

Item 34. "Do you see librarians as lower, the same, or higher in status than the following professions?"

	STUDENTS			LIBRARIANS*		
	Lower	Same	Higher	Lower	Same	Higher
Teacher	5%	71%	24%	27%	68%	27%
Lawyer	70	26	4	72	26	2
Nurse	11	55	34	12	48	40
Small business owner	9	47	44	10	42	49
Information scientist	15	81	5	32	66	2
Social worker	4	69	27	4	69	27
Media specialist	4	80	16	6	77	17
Library school professor	36	58	6	34	54	12
Psychologist	50	42	8	55	39	6

On this item there was virtually no discrimination between the three student groups. The comparable results from both sets of respondents, as shown above, suggests that the notion of the status hierarchy for professions is strongly entrenched in librarians and library students.

The most interesting difference in the perceptions of the two groups concerns the status of the information scientist in relationship to librarians. Thirty-two percent of the librarians viewed that librarians are lower in status than information scientists; 15% of the students agreed. This finding reflects other attitudes revealed in both studies and further strengthens previous indications that library school students are nonchalant in their attitudes toward information scientists while practitioners have some negative feelings. It was also determined in the study of librarians that these negative attitudes may be a factor in resistance to technology. The question that cannot be answered is whether today's library school student will also develop negative attitudes upon entering the profession or whether the attitudes of current practitioners are a function of the current state of change in the profession.

*Data from previous study, Interview Phase

Item 57. "How did you decide on librarianship as a profession?"

	STUDENTS	LIBRARIANS*
It wasn't my first choice but I couldn't get a job in what I really wanted	16	9
I happened into it without too much deliberation	38	22
A librarian I knew influenced me	26	13
Someone I knew or admired suggested it to me	11	10
I definitely wanted to be a librarian	11	36
None of the above	-	10

There was no significant relationship with the Resistance Index. This item did not discriminate between the three student groups.

*Data from previous study

SUMMARY VARIABLE CLASS V: PERCEPTIONS OF INSTITUTIONAL CLIMATE

There were two objectives in the analysis of this class of variables. The first was to determine the extent of which institutional factors are related to student resistance to technology; the second was to compare student attitudes to those of practicing librarians and to suggest the areas where students may experience a change in attitude as they enter the profession.

There were no significant relationships shown between any of the items in this class with the Resistance Index, yet for some of them there were patterns in the responsesthat suggest differences between low and high resistors:

- Low resistors tend to perceive the school climate as open and participatory to a greater degree than high resistors.

- Across the three student groups there is a spread in perception about the traditional versus innovative characteristic of their library schools and about their own participation in student-related matters. A further analysis was conducted (reported later in this report) to determine if this perception is an individual one or if it is a school-related factor.

- High resistors perceive a greater emphasis on the human services aspect of librarianship--perhaps a reflection of their desire that it be so.

- Low resistors tend to view the status of librarianship more favorably than do high resistors. There is a tendency for resistors to have a lower esteem for the profession.

In several areas, the items did not discriminate between high and low resistors, particularly in the general view in all three groups that faculty are up to date in technological developments. Another area of agreement concerned the status of librarianship in relationship to other professions where there was general agreement among all three student groups and with the perceptions of practicing librarians.

The comparison of student attitudes with those of practitioners suggest that

- The library school environment is seen as more restrictive than the library as a work setting. This finding has some implications for future attitudes since the librarian study strongly suggests that the restrictiveness in the library is related to resistance to technology.

- A similar pattern emerges regarding attitudes towards information scientists. Students voice a moderate and open attitude, tending to discount the notion that information scientists have more status or are less humanistic than librarians. The practitioners seem to have developed more negative attitudes and to be more sensitive to the perception that information scientists hold a higher status than librarians. The question for speculation is whether student attitudes reflect their lack of exposure to and awareness of practitioners in information science and whether they will therefore change their attitudes upon entering the profession, or whether relationships, perceptions and understandings between information professionals are changing.

- Students in general seem to hold librarianship in greater esteem than do practitioners. This difference may have some effect on the other reported distinctions between the two populations.

Even though there were no significant findings between the items in this variable class with the Resistance Index, there are enough trends shown in the results to suggest that organizational factors do affect the development of a resistance response; high resistors fall into the group that perceives that the library school is a traditional and restrictive environment. Further analysis, as reported later under the results of the Institutional survey, suggests that at least in some schools, the organizational environment factor is related to resistance in students.

VI. OTHER RELATED VARIABLES

Four additional items were added to the questionnaire which do not fall specifically within the five major classes of variables. All four items were adapted from the previous study of public libraries and were included for several reasons, either because (1) the item showed some relationship to RESISTANCE in the previous study; (2) the item is included as a probe to uncover some explanation for a relationship between Resistance and other variables in the study; or (3) the item is intended as an interest stimulator in the questionnaire which may or may not have enough variance to be important to the analysis.

A. The question that asks students to report on the satisfaction of their library school experience may allow a bias in the responses to other questions to be revealed. (Item #58)

	SCORE
Boring	27
Stimulating	61
Very difficult	18
Congenial, friendly	66
Isolated, unfriendly	9
Students treated as adults	69
Students treated as inferiors	13
School doesn't care about students	7
My attitude is in the middle	26
A happy experience	38
Can't wait until it's over	36
Am here under protest	1
I have been greatly disappointed	12
Surpasses my expectations	9
The best days of my life	6
A short time to tolerate and get out	21

CROSSTAB WITH RESISTANCE

[Final Score is the sum of pluses minus the sum of negatives.]

RESIST. GROUPS	SCORE RANGE: -7 through +6				
	-7 through -1	0 and 1	2	3	4 through 6*
LOW	17.5	24.4	17.6	17.1	23.2
MEDIUM	23.3	28.4	16.2	15.5	16.5
HIGH	32.6	25.8	13.7	12.9	15.3

Gamma: .19

Valid Cases: 1946/Missing: 104

Although the gammas is too low to suggest a significant relationship between general school satisfaction and the Resistance Index, the pattern of response shows that high resistors fall into the group that is more dissatisfied with the general school experience. The question that cannot be answered is whether there is a cause/effect relationship and, if so, which is cause and which is effect.

*POSITIVE ATTITUDE Library School

B. The "Cartoon" item consisted of five cartoons for which responses were ranked to reflect a positive, neutral or negative attitude toward technology. The item was designed as a modified projective technique.

When the responses were summed and crosstabbed with the Resistance Index, no significat relationship was shown. However, when each cartoon was individually crosstabbed with Resistance, Cartoon #2 emerged as the one with the strongest gamma (.21). The caption for this cartoon is "We know everything about you -- everything," and the theme is the potential for technology to impinge on the privacy of the individual. For this item, the responses of the three student groups were in the expected direction.

C. Item 59 probed the respondent's attitude toward participating in this study, seeking to uncover a bias toward the task of completing a questionnaire, the behavioral nature of this study, or the subject of the study. For both populations, students and public librarians, more than 50% responded that this study has aroused their curiosity. In both studies only 2% reported that they are not interested in the subject.

D. Item 61a and 61b related professional career goals with attitude toward technology.

Item 60a. "In which of the following do you intend to work after completing your current library school program?"

1. 24 Public library
2. 34 Special library
3. 19 School library
4. 5 Non-library employment.
5. 18 Other

Valid Cases: 2018/Missing: 32

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	1	2	3	4	5
LOW	15.9	43.5	13.3	6.6	20.5
MEDIUM	24.9	32.6	19.8	4.9	17.9
HIGH	32.1	26.4	22.6	3.4	15.6

Gamma: .10
Valid Cases: 1934/Missing: 116

Item 60b. "What kind of position would you seek?"

1. 16 Technical services
2. 39 Public services
3. 13 Administration
4. 7 Outreach or special client groups
5. 16 General (as in school library work)
6. 10 Other

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	1	2	3	4	5	6
LOW	18.1	33.4	17.7	6.3	9.5	14.9
MEDIUM	16.7	38.7	12.3	6.6	17.0	8.7
HIGH	13.3	44.0	8.3	8.5	19.7	6.2

Gamma: 0.19
Valid Cases: 1915/Missing: 135

Even though no strong relationship is shown in these two career-related items, these tables are included because they provide information on career plans of current library students. On Item 61b, the pattern of responses does show some tendency for high and low resistors to choose partiuclar kinds of professional work.

Summary Tables: Student Survey

The following tables present the results of a regression analysis which correlated the Resistance Index with the Final Variables of the study. The Final Variables were produced by summing the items within the variable sub-classes to produce a scale. The table below reports the Final Variables in the order of the strength of their relationship to the Resistance Index.

Column Designations on following table:

Below is a list of Final Variables, together with the code phrase that appears in the table. This list includes only those variables which showed significant relationship and are included on the table.

Locus of control, technology related	CONTROL-TECH
Attitude toward education for technology	ED-TECH
Attitude toward technologist	TECHNOLOGISTS
Current awareness of technology	AWARENESS
Reactions to library technologies	TECHNOLOGIES
Feelings about technology oriented literature	ARTICLES
Amount of technology literature read	JOURNALS
Locus of control, personal	CONTROL-PERSONAL
Risk taking characteristics	RISK TAKING
Sum across five cartoons	CARTOONS
Perceptions of Librarianship Status relative to other professions	STATUS-LIB
Why librarianship was chosen as profession	DECIDE
Perception of status of librarianship from personal perspective	STATUS-LIBSHIP
Perception of institutional climate of library school	OPEN CLIMATE
Cosmopolitanism	COSMOPOLITE
Perception of student participation in library school	STUDENT CONTROL
Previous experience with technology	EXPERIENCE
Perception of faculty attitude toward technology	FAC ATTITUDES

Variable Class refers to the six variable class as follows:

I. Resistance Factors
II. Technological Orientation
III. Demographics
IV. Behavioral Factors
V. Perceptions of Institutional Climate
VI. Other related variables

Within each of these variable classes were a set of Final Variables which were produced by summing their component items.

TABLE 3

CORRELATION OF RESISTANCE INDEX
WITH FINAL VARIABLES: STUDENT SURVEY

VARIABLE	MULTIPLE R	R SQUARE (cumulative)	R SQUARE CHANGE	SIMPLE R	F	VARIABLE CLASS
CONTROL TECH	.52	.27	.27	-.52	285	IV
ED TECH	.62	.39	.12	.44	88	II
TECHNOLOGISTS	.65	.42	.04	.36	71	II
AWARENESS	.67	.45	.03	-.32	17	II
TECHNOLOGIES	.69	.47	.02	.34	38	I
ARTICLES	.69	.48	.01	-.33	20	II
JOURNALS	.70	.49	.01	-.30	17	II
CONTROL-PERSONAL	.70	.49	.01	-.24	14	IV
RISK TAKING	*	*	*	-.14	*	IV
CARTOONS	*	*	*	.11	*	VI
STATUS-LIB	*	*	*	-.01	*	V
DECIDE	*	*	*	-.03	*	V
STATUS-LIBSHP	*	*	*	-.11	*	V
OPEN CLIMATE	*	*	*	-.09	*	V
COSMOP	*	*	*	0	*	IV
STUD CONTROL	*	*	*	-.13	*	V
EXPERIENCE	*	*	*	-.20	*	III
FAC ATTITUDES	*	*	*	-.03	*	V

When the Final Variables were correlated with the Resistance Index, the strongest of those variables was in Class IV, Behavioral Characteristics, specifically the sense of control that the person has over technological events in his or her life. However, three of the first four variables came from Variable Class II, Orientation to Technology, with particular emphasis on the respondent's attitudes toward (1) education for technology, (2) technologists as machine-oriented people, and (3) on the level of current awareness of library technologies. Sixty-seven percent of the variance is explained by these four variables.

Beyond these four variables, very little of the variance is explained by the remaining 14 factors. Four more had significant F's but their collective contributions were less than .8%.

In order to determine if the remaining 14 variables would account for variance on their own, a second analysis was conducted, forcing the ten bottom variables to the top, those that made low marginal contribution

to predicting Resistance. These were separately related to Resistance.

On this second analysis, these variables produced about 8% of the variance. (When the stronger variables were included, their contribution was about 1%). By themselves, this latter group explains a relatively small proportion of the variance. When the variance explained by the stronger classes have been accounted for, the latter group contributes no further information. The conclusion is that the low producing Variable Classes (Demographics, Personality Characteristics other than Locus of Control, Organizational climate and other related variables in Class IV) are not strong enough to pursue in further analysis or study.

PART B FACULTY MAIL SURVEY

VARIABLE CLASS I: RESISTANCE FACTOR

A. RESISTANCE INDEX

The 12-item Resistance Index which had produced the criterion variable for the student survey was again applied in the faculty survey. The scale had been developed for a previous study of public librarians and resistance to technology. A comparison of the frequency distributions of the responses of the three populations, i.e., library school students, faculty, and practitioners, is presented in Appendix C of this report.

In order to allow for comparison between student and faculty responses on this scale, a comparable analysis was applied to the two sets of data. From the summed Resistance items (Item 1-12), the faculty respondent population was divided into three groups according to the degree of resistance in their responses on these items. Rather than dividing the groups by using the upper and lower quartiles, the groups were divided by applying the same score criteria that divided the student groups. The following table shows the breakdown of students and faculty groups into low, high and medium resistors according to their summed scores on the Resistance Index:

TABLE 4

RESISTANCE GROUPS: FACULTY AND STUDENTS

GROUP	% if STUDENT POPULATION	% of FACULTY POPULATION	SUMMED SCORE RESIST INDEX (12-58)
LOW RESIST.	28%	46%	12-27
MED. RESIST.	45	37	28-35
HIGH RESIST.	27	17	36-58

The implication here is that faculty as a whole are noticeably less resistant to technology than is the student population. There is evidence, however, that there are some faculty members who are highly resistent; two respondents' scores were 54, an extraordinary high score on the 58-point Resistance Index.

One reason that faculty evidenced less resistance that students may be that faculty are more sensitive to professionally acceptable response patterns and the results may therefore have been diluted by a socially desireable response set. But given that faculty may be less resistant as a whole than students, there was sufficient variance between high, medium and low resistors to conclude that the Resistance Index would differentiate between them. The results of the crosstabulation of each item with the three resistance groups, determined by the same score criteria as had been applied to the student groups, show that faculty responses in general follow the same pattern as student responses.

The following table shows the comparison of student and faculty responses on the 12-item Resistance Index. The crosstabulations on each of these items showed faculty response patterns in the expected direction, that is, low, medium and high resistors were sharply differentiated in their agreement or disagreement on resistance-related issues. (Crosstabulations of faculty responses on these items are included in Appendix D of this report.)

TABLE 5
FACULTY AND STUDENT RESPONSES: RESISTANCE INDEX

ITEM/ISSUE	RESPONDENT GROUP	ADJUSTED FREQUENCY DISTRIBUTION					GAMMA ON CROSSTAB WITH RESISTANCE	VALID/MISSING CASES
		SA	A	M	D	SD		
1. Future depends technology	STUDENTS	18	40	25	14	3 *	.48	
	FACULTY	22	44	18	14	3	.54	303/4
2. Already dehumanized	STUDENTS	*5	24	31	35	5	-.68	
	FACULTY	3	20	25	41	12	-.64	304/3
3. Potential to control	STUDENTS	*13	41	20	23	3	-.53	
	FACULTY	17	37	20	22	5	-.43	302/5
4. Books not Machines	STUDENTS	* 8	16	29	37	11	-.68	
	FACULTY	6	15	16	32	30	-.63	300/7
5. Extension of self	STUDENTS	21	52	20	6	2 *	.70	
	FACULTY	38	44	12	5	1	.74	304/3
6. Technology gives control	STUDENTS	14	50	25	9	2 *	.56	
	FACULTY	29	50	14	5	2	.58	300/7
7. Technology complicated	STUDENTS	* 6	32	25	33	5	-.61	
	FACULTY	7	23	17	39	13	-.52	304/3
8. Job worry	STUDENTS	* 6	21	23	43	7	-.63	
	FACULTY	2	13	17	49	20	-.62	302/5
9. Relationship suffer	STUDENTS	* 4	16	19	51	10	-.79	
	FACULTY	2	12	14	47	25	-.72	305/2
10. Prefer card catalog	STUDENTS	* 5	15	33	42	16	-.71	
	FACULTY	4	10	15	36	34	-.70	304/3
11. Benefit special groups	STUDENTS	* 7	30	19	36	9	-.66	
	FACULTY	6	22	17	36	20	-.64	303/4
12. Technology far in future	STUDENTS	* 1	5	11	54	29	-.48	
	FACULTY	0	4	8	49	38	-.46	301/6

* Asterisk indicates direction of HIGH RESISTANCE

B. AFFECTIVE/RESISTANCE ITEMS. As with the students survey, three adtional items were included in the Resistance class of variables to further tap the affective dimension of the resistance response. Shown below are the frequency distributions for these three items, followed by the crosstabulation with the Resistance Index. For items 22 and 23, the individual parts of the item were summed to produce the score which was then crosstabulated with the Resistance Index. For each of the items below, the student gamma is shown for comparison.

Item 21. Respondents were asked to rate the following library technologies: (Student Questionnaire Item 28)

Technology	Positive	Neutral	Negative	Valid/Missing Cases
1. Microforms	50	29	21	302/5
2. Computer terminals	80	17	4	303/4
3. Films and Projectors	66	25	9	303/4
4. Audio and videotape	71	24	6	303/4
5. Automated cataloging	68	27	5	303/4

CROSSTABS WITH RESISTANCE

21-1 Microfilms

RESIST. GROUP	Positive	Neutral	Negative *	Faculty Gamma	Student Gamma
LOW	57.4	24.8	17.7	.17	.22
MED	43.5	33.0	23.5		
HIGH	43.5	34.8	21.8		

21-2 Computer Terminals

LOW	92.2	6.4	1.4	.64	.66
MED	77.4	19.1	3.5		
HIGH	46.8	42.6	10.6		

21-3 Films and Projectors

LOW	67.4	26.2	6.4	.09	.01
MED	65.2	25.2	9.6		
HIGH	61.7	23.4	14.9		

21-4 Audio and Videotape

LOW	73.0	22.7	4.3	.13	.06
MED	71.3	22.6	6.1		
HIGH	61.7	29.8	8.5		

21-5 Automated Cataloging

LOW	80.1	18.4	1.4	.48	.33
MED	65.2	31.3	3.5		
HIGH	40.4	42.6	17.0		

Item 22. "Check the words that generally apply when you think of technology." Adjective checklist containing 10 positive, 10 neutral and 10 negative words. (Student Questionnaire Item 29.)

The following are the gamma coefficients for those adjectives which were most highly correlated with resistance:

Negatively correlated		Positively correlated	
Enjoyable	-.47	Dehumanizing	.60
Efficient	-.52	Degrading	.61
Flexible	-.43	Expensive	.31
Manageable	-.25	Rigid	.31
Simple	-.30	Mysterious	.28
Exciting	-.38	Limiting	.46
Reassuring	-.30	Manipulating	.36
Powerful	-.24	Alienating	.48
Durable	-.32		
Expansive	-.39		

There was virtually no difference between the groups on whether technology is perceived as masculine or feminine.

The student gamma on the total score of these items (positive scores minus negative scores) was -.49 when crosstabbed with the Resistance Index.

On the distribution of responses by faculty, 80% checked "necessary" when asked to check technology-related feelings, 76% checked "efficient," 68% checked "inevitable," 65% checked "expensive," and 62% checked "manageable." The important result is that of those faculty respondents who fall into the high resistant group, the most often selected affective words were "degrading," "dehumanizing" and "alienating."

Item 23. "Which of these tasks might technology help a librarian do better?" This item taps the respondents' ability to see the breadth of potential in technology. (Student Questionnaire Item 30.)

When the individual parts of this item were crosstabbed with resistance, the following showed the largest gamma:

Communicating	-.59
Delivering	-.59
Corresponding	-.57
Fiscal managing	-.55
Public relations	-.55
Answering questions	-.52
Interacting	-.52

When the results were compared with the student study, there was evidence of differences in perception. Faculty tended to see technology as enabling the interactions between people to a greater extend that students did, as the following frequency distribution shows:

	Percentage Checked by Faculty	Percentage Checked by Students
Interacting	48%	27%
Public Relations	39	23
Corresponding	64	47
Communicating	66	45
Delivering	79	56

In general, faculty seemed to see more potential for technological applications to a greater breadth of functions than students did.

SUMMARY: VARIABLE CLASS I, RESISTANCE FACTORS

In general, the results of the crosstabulations with resistance on these 12 items show a marked similarity between students and faculty, an indication that the Index is tapping the same phenomenon for both populations. There is some tendency for students who fall into the high resistant group to exhibit more population-relative resistance than is evident for faculty in the high resistance group (i.e., for student results to produce a higher gamma score). In several of the items, the difference is greater than on the rest. High resistant students seem to show greater concern than high resistant faculty about the potential for technology to control human beings, the effect of the complexity of technology on the user, and the potential for technology to cause interpersonal relationships to suffer. Conversely, resistant faculty feel more strongly than students that the future of society is not dependent on technological development and do not see technology as an extension of the physical self to the degree than high resistant students report.

As with the student group, the strongest resistance predictor in items for faculty were: (1) "I see technology as an extension of myself;" (2) "Technology will cause interpersonal relationships to suffer;" and (3) "I still prefer using the card catalog to using automated devices," a reflection of the leaning toward the traditional role of the librarian.

The results on the three additional affective/resistance items confirm that even resistant-group faculty are less resistant than resistant-group students, that they are less fearful of the breakdown of interpersonal relationships, and they they see a greater potential in the applications of technology than students do.

VARIABLE CLASS II: ORIENTATION TO TECHNOLOGY FACTORS

A. AREAS OF TEACHING COMPETENCE/ORIENTATION TO TECHNOLOGY

This set of items was included to assess the relationship between resistance to technology and teaching activities.

Item 24. "Do you teach any courses that have a technological orientation?"

YES	NO
61	39

Valid Cases: 291/Missing: 16

CROSSTAB WITH RESISTANCE

RESIST. GROUP	YES	NO
LOW	77.2	22.8
MED	49.5	50.5
HIGH	41.3	58.7

gamma = .51

Item 25. "Do you discuss technological applications in your non-technology courses?"

YES	NO	ON OCCASION	WHEN APPLICABLE
67	4	9	20

Valid Cases: 299/Missing: 8

No significant relationship on crosstabulation with resistance was shown.

Item 26. "Would you say that your course material or teaching methods change to reflect changes in technological applications in libraries?"

YES	NO	IN SOME INSTANCES	DOES NOT APPLY
70	2	22	6

Valid Cases: 300/Missing: 7

CROSSTAB WITH RESISTANCE

RESIST. GROUP	YES	NO	SOME INSTANCES	DOES NOT APPLY
LOW	80.4	0.0	15.9	3.6
MED	67.5	4.4	21.1	7.0
HIGH	43.8	2.1	43.8	10.4

gamma = .42

The results here indicate that the personal resistance to technology experienced by individual faculty members will be reflected in classroom behavior. The difference in responses between high and low resistors is great enough to suggest that faculty resistance to technology will have an important impact on the degree to which students are being adequately prepared for work in a progressive library.

B. CURRENT AWARENESS OF TECHNOLOGICAL DEVELOPMENTS

Item 27. "Do you belong to ASIS?"

YES	NO
29	71

Valid Cases: 302/Missing: 5

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	YES	NO
LOW	42.1	57.9
MED	22.1	77.9
HIGH	8.2	91.8

gamma = .54

This finding suggests the reason that only 42% of the students surveyed had ever heard of ASIS. It also suggest that professional memberships are a reasonably significant and easily obtained measure of personal attitudes.

Item 28. "Do you 'update' in technology?"

YES	NO
91	9

Valid Cases: 305/Missing: 2

" In what ways (past 2 years)?"

ACTIVITY	YES	NO	GAMMA:CROSSTAB WITH RESISTANCE
Conference attendance	31	69	-.52
Journal reading; general	17	83	-.55
Continuing education	52	48	-.26
ALA/other association sessions	55	45	-.27
Library technology journals	84	16	-.43
Other	97	3	-.02

When these individual items were summed to produce a single score, the gamma produced by the crosstab of resistance and updating activities was .65.

Most of the responses shown above are in the expected direction with journal reading and conference attendance showing the strongest inverse correlation with resistance. The strongest item is the last, "other," which was checked by 97% of the respondents. One possibility is that respondents used that category to include their informal conversations with colleagues. Whatever "other" may have meant, it was not correlated with resistance while the more formal activities were highly correlated.

Item 29. "Which of the following journals do you read or browse with some regularity?"

Journal	Yes	No	Gamma: Crosstab with Resistance
Datamation	77	23	-.53
Computer World	85	15	-.46
Journal of Library Automation	53	47	-.40
On-Line	73	27	-.33
On-Line Review	83	17	-.32
Other	84	16	-.14

Valid Cases: 305/Missing: 2

As with the previous item, a large percentage of the respondents checked "other," yet this was the only item which showed no correlation with resistance.

Item 30. "Do you know how to run a computer search? (Asking a graduate assistant doesn't count!)"

YES	NO	Yes, but with difficulty
49	30	21

Valid Cases: 304/Missing: 3

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	YES	NO	YES, BUT...
LOW	65.7	18.6	15.7
MED	38.6	32.5	28.9
HIGH	28.0	54.0	18.0

gamma = .36

The report that only half of the library school faculty surveyed are able to conduct a computer search was a surprising finding, as was the relatively low correlation between "Knowing how" and resistance. The library literature strongly proposes that knowing how to operate and understanding the principles involved in technological operations will diffuse resistance. This finding suggests that this commonly held belief is open to further question.

Item 31. "Which of the following concepts and processes would you be comfortable discussing?"

	YES	NO	Gamma:Crosstab with Resistance
OCLC	81	19	-.45
National Periodicals Center	55	45	*
RLIN	45	55	-.24
database	74	26	-.47
microcards	56	44	*
CRL	42	58	-.26
NELINET	36	64	-.22
NECRONET (FALSE ITEM)	4	96	*
CLSI	35	65	-.34

* No relationship shown; gamm less than .2.

	YES	NO	Gamma: Crosstab with Resistance
bytes	44	56	-.47
batch	58	42	-.41
ASIS	57	43	-.43
nanosecond	30	70	-.47
AMIGOS	36	64	-.31
PNBC	13	87	*
interactive systems	54	46	-.54
hologram	38	62	-.35
laser	38	62	-.36
CRT	65	35	-.55
solid state	30	70	-.29
fiber optics	27	73	-.38
on-line	76	24	-.48
word processing	56	44	-.36

The strongest correlations with resistance are in the awareness of two basic computer related concepts: CRT and interactive systems, followed by "on-line," "bytes," "database" and "nanoseconds."

As was also true with students, faculty reported a greater awareness of the technologies themselves than of the library-related systems that have evolved to enhance library service through technological applications (e.g., NELINET, CLSI, AMIGOS, PNBC).

One item was false, included as an accuracy of response check. Four percent of the faculty respondents check the item.

C. ATTITUDES TOWARDS TECHNOLOGISTS

On two of the four items in this set (Items 13 and 15), there was little or no differentiation between high and low resistors. Most respondents (90%) disagreed that technologists rather than librarians should make technological decisions for libraries. Forty-four percent believed that information science students tend to feel superior to library science students and 34% were in the middle. Students responded differently. Only 67% disagreed in the matter of technologists as library decision makers. Thirty-three percent believed that information science students feel superior; 47% were in the middle. There was some correlation (gamma: -.20) with this item in the student responses but no significance was shown in the item in the faculty responses. These items, while not resistance-related, do reflect differing perceptions between students and faculty.

Item 14. "Contrary to popular belief, information scientists are easy to talk to, treat library professionals as equals, and are generally compassionate people." (Student Questionnaire Item 16)

FREQUENCY

*SA	A	M	D	SD
7	26	43	17	7

Valid Cases: 294/Missing: 13

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	SA/A	M	D/SD
LOW	50.7	34.6	14.7
MED	19.4	50.4	30.1
HIGH	15.6	51.1	33.3

Gamma: .42

This "attitude toward technologists" item showed even more strength in the faculty survey than in the student survey (gamma: .27), confirming the suggestion in the student findings that negative attitudes toward technologists are not a significant part of the student experience. In their reactions toward information scientists, faculty attitudes parallel those of practitioners rather than of students.

Item 16. "Technologists are machine-oriented; librarians are people-oriented." (Student Questionaire Item 17)

FREQUENCY

*SA	A	M	D	SD
2	25	35	31	7

Valid cases: 299/Missing: 8

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	SA/A	M	D/SD
LOW	14.9	28.4	56.8
MED	32.2	40.2	27.7
HIGH	54.3	41.3	4.4

Gamma: -.55

As with the student survey, this item was the strongest one in this class of variables, reinforcing the suggestion that resistance is highly related to the belief that technology will disrupt interpersonal relationships and indicating the belief that technologists differ from librarians in their interpersonal orientation.

SUMMARY VARIABLE CLASS II: ORIENTATION TO TECHNOLOGY FACTORS

The purpose for including this class of variables was to determine the degree of relationships between a personal resistance toward technology experienced by faculty and associated professional behaviors that may ultimately affect the library school experience of students. While the results of the study indicate that faculty are less resistant than students, it also indicates that resistance to technology is a significant operating factor among faculty (54% fell into the high or middle resistance groups).

Resistance often goes unvoiced; many times it is an unconscious dynamic that affects an individual's attitudes, decisions, and behavior. Resistance of faculty, for example, while unvoiced as resistance, may nonetheless be a factor in decision making and performance. While many reational reasons are given to justify or explain one's educationl philosophy, the resistance of individuals may be an underlying factor that affects the course of events.

The results of the study indicate that resistance to technology is related to the following attitudes and behaviors:

-Resistance is correlated with areas of teaching competence, so than non-technology faculty are more likely to be resistant. Non-technology faculty report that they do not change their courses to reflect technological changes taking place in libraries.

-Professional membership is correlated with resistance and will apparently affect student interest in association membership and activities.

-Most faculty members reported that they do "update" in technological developments. The indications are that formal activities (such as conference membership and attendance, reading technology-related library literature, etc.) are more likely to be related to the lessening of resistance than are "other" or non-specific activities.

-Half of the faculty respondents are either unable to perform or unconfortable with the actual operations involved in running a computer search. This ability is not highly correlated with resistance. Apparently, "knowing how" is not essential to acceptance of technology.

-Faculty awareness of library-related technologies is relatively low. The basic concepts (e.g., "on-line," "CRT," "database") are familiar to a majority of respondents but the more technical aspects are understood by a little more than half of the respondents.

-As with the student respondents, the strongest correlation with resistance concerns the belief that "technologists are machine-oriented while librarians are people-oriented." This strengthens a general theme throughout the study that the strongest factor in the resistance-to-technology reaction is that technology has the potential to disrupt interpersonal relationships.

VARIABLE CLASS III: INSTITUTIONAL/PROFESSIONAL FACTORS

This class of variables was included to tap the relationship between organizational environment factors and perceptions of professional status to the formation of a resistance reaction.

A. PERCEPTIONS OF INSTITUTIONAL CLIMATE

Item 37. "From each of the following pairs, check the one word that most closely describes your library school as you see it." (Student Questionnaire Item 47.)

DISTRIBUTIONS

1. a. 14 authoritarian
   b. 86 participating

2. a. 88 open
   b. 12 closed

3. a. 67 innovative
   b. 33 traditional

4. a. 80 social
   b. 20 isolating

5. a. 14 restrictive
   b. 86 permissive

Valid cases: 269/Missing: 38

No correlation was shown between resistance and organizational climate except for a slight relationship between the fifth pair (restrictive/permissive; gamma: -.23). On the study of public librarians, this same factor emerged as a significant predictor of resistance. It may be that this factor is not as relevant in the academic setting because relatively little perceived restrictiveness was reported by faculty respondents.

In comparing faculty responses with student responses, it would appear that there are differences in perceptions. It would be expected that the student experience is more restrictive and less participating than that of faculty, but the perception of students differs from faculty about the innovativeness of the school:

RESPONDENT GROUP	INNOVATIVE	TRADITIONAL
FACULTY	67%	33%
STUDENT	50%	50%

B. PERCEPTIONS OF LIBRARIANSHIP STATUS.

Item 41. Respondents were asked to rank the status of librarianship in relation to nine other professions. (Student Questionnaire Item 34)

Except for one item, the results of faculty and student rankings were comparable, and both were comparable to the responses of public librarians in the previous study. The following item was the exception:

> Rank "librarian" as lower, the same or higher in status than "information scientist."

	Librarianship is:		
	LOWER	SAME	HIGHER
STUDENT RESPONSE	15	81	5
FACULTY RESPONSE	24	70	6
PRACTITIONER RESPONSE	32	66	2

While there is a significant divergence of perception between students and practitioners between the relative status of information scientists and librarians, faculty perceptions fall in-between.

No significant relationship was shown between this "status" item and resistance on crosstabulation.

Item 19. "Librarianship is being accepted as a respected profession more and more as time goes on." (Student Questionnaire Item 26.)

DISTRIBUTION

SA	A	M	D	SD
6	39	29	21	4

Valid Cases: 300/Missing: 9

No significance was shown with resistance on this item.

Item 20. "Librarianship as a profession is limited in outlook." (Student Questionnaire item 27)

SA	A	M	D	SD
8	27	24	27	14

Valid Cases: 299/Missing: 8

Not significant on crosstabulation

C. PERCEPTIONS OF OTHER FACULTY ATTITUDES TOWARD TECHNOLOGY.

Item 17. "The faculty of this school are generally up-to-date in technological developements as they occur." (Student Questionnaire Item 24)

SA	A	M	D	SD
10	43	26	17	3

Valid Cases: 298/Missing: 9

Students seem to have a more positive perception of faculty currency than faculty do of themselves. Student responses on the same item are:

SA	A	M	D	SD
15	56	22	6	2

No relationship was shown with resistance on this item.

Item 18. "The faculty of this school stress human services rather than technology." (Student Questionnaire Item 25)

SA	A	M	D	SD
5	39	39	15	2

Valid Cases: 300/Missing: 7

Student and faculty responses were similar on this item.

No significance of relationship with resistance was shown for this item.

SUMMARY VARIABLE CLASS III: INSTITUTIONAL/PROFESSIONAL FACTORS

While "organizational climate" was a strong correlate of resistance in the previous study of public librarians, this class of variables showed no relationship to resistance in the study of library school faculty. The importance of this variable cannot be dismissed, however. Since there is less resistance evidenced by faculty and less restrictiveness reported in the academic setting than in the library setting, the significance of this factor in relation to resistance did not emerge in the faculty survey as it did in the practitioner study.

VARIABLE CLASS IV: DEMOGRAPHICS

A. AGE

DISTRIBUTIONS:*

30-39	29%
40-49	29%
50-59	28%
60-69	11%
70-71	1%

Valid cases: 290/Missing: 17

A small relationship exists between age and resistance (gamma: .21)

B. SEX

DISTRIBUTION

MALE	FEMALE
57	42

Valid Cases: 302/Missing: 5

CROSSTAB WITH RESISTANCE

RESIST. GROUPS	MALE 1	FEMALE 2
LOW	60.4	39.5
MEDIUM	56.1	43.9
HIGH	51.0	48.9

gamma = .12

While there is no significance in the relationship between sex and resistance, yet the high proportion of males relative to females in the low resistance group may have some implications.

C. EDUCATIONAL BACKGROUND

DISTRIBUTION

HUMANITIES	SCIENCES	EDUCATION	SOCIAL SCIENCES	OTHER
43	15	14	21	7

Valid cases: 304/Missing: 3

Not significantly related to resistance.

D. EXPERIENCE IN LIBRARIES

Item 35a. "Worked in a library?"

YES	NO
92	8

Valid Cases: 301/Missing: 6

* Less than 1% responses to an age category are not reported.

Item 35b. "How long?"

Years	Distribution
1-5	27%
6-10	29
11-15	20
16-20	11
21-30	8
more than 30	2

Valid cases: 279/Missing: 28

Item 35c. "What was the last year worked?"

Year	Distribution
1955-1960	7%
1961-1965	10
1966-1970	26
1971-1975	23
1976-1980	31

Valid Cases: 275/Missing: 32

Library experience was not significantly related to reistance.

E. ACADEMIC EXPERIENCE

Introductory Item. "Are you:"

	Distribution
Fulltime Faculty	67%
Partime Faculty	14
Visiting or Adjunct	18
Other	2

Valid Cases: 299/Missing: 8

No relationship to resistance was associated with this item.

Item 36a. "Years of teaching in a library school?"

Years	Distribution
1-5	32%
6-10	28
11-15	20
16-20	11
21-25	5
over 25	2

Valid Cases: 299/Missing: 8

Item 36b. "At how many different colleges or universities have you taught in library education?"

No. of institutions	Distribution
1	42%
2	26
3	17
4	9
5-6	5

Valid Cases: 298/Missing: 9

Item 36c. "How many institutions of high learning did you attend?"

No. of institutions	Distribution
1	8%
2	26
3	30
4	19
5	11
6 or more	6

Valid Cases: 302/Missing: 5

No significant relationship with resistance were evidenced in these items.

SUMMARY VARIABLE CLASS IV: DEMOGRAPHICS

A demographic description of library school faculty presents a varied group. In age they generally range from 30 to 60, with approximately 30% falling within each decade. Male/female ratio is 57 to 42. In educational background, 43% come from the humanities, 15% from the sciences, 21% from social sciences and 21% from education. Most (92%) have worked in a library, 54% within the past 10 years. Most have taught in a library school for 10 years or less (60%) and 58% have taught in more than one school during their teaching careers. Most faculty (92%) have attended more than one institution of higher learning. It is an academically cosmopolitan population.

It had been hypothesized that demographics and cosmopolitanism were related to the resistance reaction, but the results of this study do not support these assumptions. The study of public librarians had shown a relationship between both age (older) and sex (female) as related to resistance. In the current study of both library school students and faculty, no significant relationship emerged, even though more male faculty fell into the low resistance group than did females. This was not true for library school students where there was no distinction between the sexes.

Breadth of experience as measured by number of educational institutions attended, number of schools at which the respondent taught or years of work experience in a library were not significantly related to resistance.

This finding of no relationship to demographics has importance in the understanding of where resistance does come from. It cannot be attributed to stereotypical perceptions about age, sex, background, etc, all of which are given factors and are non-actionable. It leaves open the question of which factors do generate resistance.

One of those factors which was not addressed in the faculty study concerns the perception of control which an individual feels over the environment. The student survey strengthens this hypothesis while it also confirms that resistance is not demography-related in today's library school context, either for students or for faculty.

VARIABLE CLASS V: BEHAVIORAL FACTORS

A. OPINION LEADERSHIP

Item 39. "Would you like to be a dean?" (Related to Student Questionnaire Item 20.)

DISTRIBUTION

YES	NO	Can't Decide
15	73	12

Valid Cases: 299/Missing: 8

No relation to resistance was shown.

Item 40. "Do you consider yourself to be an 'opinion leader' on the faculty?" (Related to Student Questionnaire Item 19.)

DISTRIBUTION

YES	NO
42	58

Valid cases: 290/Missing: 17

No relation with resistance was shown.

SUMMARY: VARIABLE CLASS V: BEHAVIORAL FACTORS, OPINION LEADERSHIP

These items had been included because in the previous study of public librarians, high resistance had tended to be associated with the organizational opinion leaders. In both the student and faculty surveys in the current study, no such relationship emerged.

VARIABLE CLASS VI: OTHER RELATED ITEMS

The following two items were included as probes to determine if non-specific areas of resistance to technology or perhaps to the study itself would be uncovered.

Item 42 was a series of five technology-related cartoons. No relationship emerged between "humor responses" and resistance to technology.

Item 40 asked respondents to give a reaction to the questionnaire and this study. Thirty-eight percent reported a highly favorable reaction ("fascinating experience," "has aroused my curiosity"). Forty-six percent were indifferent ("just another questionnaire," "no feeling about it"). Fourteen percent were negative ("seems like a useless exercise," "not interested in the subject"). No relationship was shown between feelings toward the questionnaire or the study and resistance.

Item 31b was a false item, included as a social desireability response check. Only 4% of the respondents checked this item, suggesting that the tendency to demonstrate total knowledge of the field of technology may not have been a strongly operating factor.

Summary Table: Faculty Survey

The following table reports the results of a multiple regression analysis in which the Resistance Index was correlated with the Final Variables in the faculty study.

Column Designation on the following table:

Awareness of technological potential (Number of functions technology can can help perform.)	TASKS
Negative affective reaction to technology (Negative adjectives checked)	NEG. WORDS
Current awareness of technology in libraries	AWARENESS
Status of librarianship relative to other professions	STATUS-LIB
Negative attitudes toward technologist	TECHNOLOGISTS
Reactions to library technologies	TECHNOLOGIES
Status of librarianship, personal perceptions	STATUS-LBSHP
Positive affective reaction to technology (Positive adjectives checked)	POS. WORDS
Neutral words checked	NEUT. WORDS

TABLE 6

RESISTANCE INDEX BY FINAL VARIABLES
FACULTY SURVEY

VARIABLE	MULTIPLE R	R SQUARE (Cumulative)	R SQ. CHANGE	SIMPLE R	SIG. LEVEL	VARIABLE CLASS
TASKS	.38	.15	.15	-.38	-.01	II
NEG. WORDS	.47	.22	.07	.13	-.01	I
AWARENESS	.51	.26	.04	-.36	-.01	II
STATUS LIB	*	*	*	.12	*	III
TECHNOLOGISTS	*	*	*	.20	*	II
TECHNOLOGIES	*	*	*	.13	*	I
STATUS LBSHP	*	*	*	.11	*	III
FAC ATTITUDES	*	*	*	.12	*	III
POS WORDS	*	*	*	-.25	*	I
NEUT WORDS	*	*	*	-.09	*	I

Only the first three variables were significantly related to resistance, one of those factors being itself an affective item (respondent was asked to check negative words). The two other strongest variables were from Variable Class II, Orientation To Technology, and both concerned the respondents' awareness of the breadth of technological capability. Other factors such as perception of the status of librarianship, attitudes toward technologists, and attitudes towards particular library technologies were not related to resistance.

Behavioral characteristics, demographics and organizational perceptions were not among the significant variable classes.

Faculty resistance seems to be most sensitive to knowledge of technology and awareness of its potential capabilities. In this respect, faculty seems to differ from both other populations, students and practitioners, where awareness was not a strong predictor of resistance.

PART C. INSTITUTIONAL SURVEY

The following tables present the data from the general information survey sent to all the accredited library schools in the United States, including those schools which were not in the student/faculty survey. In order to allow for comparison between data from the student/faculty surveys and the institutional surveys from those schools which were included in the sample, the tables of general information are divided into two parts: the first part presents data from sampled schools, the second from schools which were not in the study sample. Schools not included in the sample are indicated by parenthesis around the school code.

Since the general school survey asked both close-ended questions and allowed for additional or explanatory comments for each question, the tables are followed by a summary of those comments if the information could not be incorporated into the tables themselves. A more detailed set of comments are included in Appendix E.

VARIABLE CLASS I: DEMOGRAPHICS

A. SIZE. For the purpose of this study, the total number of people in school was the relevant variable. Therefore, figures are not broken down to reflect full and part-time distributions.

1. Number of students (full and parttime) reflected in current enrollment figures at the time of the survey. In most cases schools reported figures from the previous term.

2. Number of faculty, both full and parttime. In one case where the faculty number was reported as full time equivalent, the notation (FTE) is made parenthetically.

B. URBANICITY. This variable refers to the larger social environment.

1. Size of city or community in which the school is located is broken into the following categories. The community size is indicated on the table by the letter designated below:

   A. More than 250,000 population
   B. 100,000 - 249,999
   C. 50,000 - 99,999
   D. 25,000 - 49,999
   E. Under 24,999

2. Size of university of which the school is a component. Most of these figures are approximate enrollments which include full and parttime students. FTE figures are noted as such.

C. INTENSITY OF PROGRAM as indicated by how much contact the student has with the school over what period of time.

1. Length of program. In most cases the length of the program was reported in quarters and in two others length is reported as variable since many students attend parttime. These cases are noted on the table.

2. Number of contact hours required for a master's degree. Numbers reported may reflect number of courses or quarter hours. Most are in the form of credit hours. It was not possible to fit all the varities of responses into comparable reporting units.

TABLE 7

VARIABLE CLASS 1: SCHOOL DEMOGRAPHICS

Schools in Sample

	SIZE		URBANICITY		INTENSITY OF PROGRAM	
CHOOL ODE	STUDENT POPULATION	FACULTY NUMBER	COMMUNITY POPULATION	UNIVERSITY STUDENT FTE	LENGTH MASTERS PROGRAMS YEARS OR QUARTERS	NUMBER OF CREDITS OR * COURSES
07	75	8	C	2,500	1 yr.	38 credits
11	146	30	A	7,800	1 yr.	36 credits
13	400	46	A	7,800	1 1/2 yr.	36 credits
15	80	19	A	10,000	5 quarters	15 courses
17	150	8	E	5,000	1 yr.	36 credits
20	170	16	A	7,000	4 quarters	45 credits
22	275	27	A	9,000	1 yr.	60 qt. hrs.
26	135	13	C	2,200	1 yr.	48 qt. hrs.
28	125	9	A	-	1 yr.	36 credits
31	230	19	D	-	1 yr.	40 semester hr
34	250	11	D	-	1 yr.	36 credits
37	235	13	E	12,000	1 yr.	36 credits
39	101	11	B	28,000	1 yr.	34 credits
45	168	21	B	13,100	1 yr.	36 credits
47	154	15	A	25,000	1 yr.	36 credits
49	170	15	E	4,000	1 yr.	36 credits
34	150	20	D	21,000	1 yr.	36 credits
53	NO RESPONSE	-	-	-	-	-
56	60	10	D	22,000	variable	30 credits
61	120	15	A	19,000	1 yr.	36 credits
64	239	11	E	1,500	1 yr.	36 credits
66	300	50	D	-	1 yr.	36 credits
68	84	9	E	17,500	1 yr.	36 credits

VARIABLE CLASS: SCHOOL DEMOGRAPHICS
SCHOOLS IN SAMPLE

	SIZE		URBANICITY		INTENSITY OF PROGRAM	
SCHOOL CODE	STUDENT POPULATION	FACULTY NUMBER	COMMUNITY POPULATION	UNIVERSITY STUDENT FTE	LENGTH MASTERS PROGRAMS YEARS OR QUARTERS	NUMBER OF CREDITS OR COURSES
70	150	15	A	26,000	1 yr.	36 credits
73	124	12	B	28,000	1 yr.	36 credits
75	225	20	A	24,000	1 yr.	55 credits
79	100	20	B	20,000	1 yr.	36 credits
82	198	20	A	42,000	1 yr.	36 credits
85	90	8	A	8,000	1 yr.	36 credits
88	151	9	A	32,000	variable	52 qt. hrs.
90	125	13	C	20,000	1 yr.	30-36 credits
92	161	20	B	34,000	1 yr.	30 credits

VARIABLE CLASS: SCHOOL DEMOGRAPHICS
SCHOOLS NOT IN SAMPLE

	SIZE		URBANICITY		INTENSITY OF PROGRAM	
SCHOOL CODE	STUDENT POPULATION	FACULTY NUMBER	COMMUNITY POPULATION	UNIVERSITY STUDENT FTE	LENGTH MASTERS PROGRAMS YEARS OR QUARTERS	NUMBERS OF CREDITS OR COURSES
(34)	75	12	B	-	1 yr.	36 credits
(36)	72	5	B	-	1 yr.	36 credits
(38)	No response	-	-	-	-	-
(40)	111	12	A	-	1 1/2 yrs.	38 credits
(42)	95	10	C	17,500	1 yr.	-
(45)	106	37	B	27,000	1 yr.	42 qt. units
(47)	150	18(FTE)	A	32,000	2 yr.	18 courses
(53)	180	25	A	-	1 yr.	36 credits
(57)	63	11	A	7,000	1 yr.	45MA/60MIN
(59)	150	11	D	5,200	1 yr.	32 credits
(63)	113	24	C	-	1 yr.	40 sem. hrs.
(66)	65	10	C	20,000	1 yr.	33 credits
(69)	104	16	B	23,000	1 yr.	36 credits
(73)	250	23	B	37,500	1 yr.	36 credits
(75)	240	23	B	30,000	1 yr.	36 credits

VARIABLE CLASS: SCHOOL DEMOGRAPHICS
SCHOOLS NOT IN SAMPLE

	SIZE		URBANICITY		INTENSITY OF PROGRAM	
SCHOOL CODE	STUDENT POPULATION	FACULTY NUMBER	COMMUNITY POPULATION	UNIVERSITY STUDENT FTE	LENGTH MASTERS PROGRAMS YEARS OR QUARTERS	NUMBER OF CREDITS OR COURSES
(77)	135	9	A	30,000	1 yr.	54 qt. hrs.
(79)	90	13	C	23,000	1 yr.	30 credits
(86)	No response	-	-	-	-	-
(89)	55(FTE)	9	C	20,000	1 yr.	36 credits
(91)	329	14	A	-	1 yr.	36 credits
(93)	160	13	A	4,500	1 yr.	36 credits
(96)	245	10	E	11,000	1 yr.	36 credits
(102)	192(FTE)	22	A	2,100	1 yr.	36 credits
(106)	140	17	A	20,000	1 yr.	36 credits
(108	575	13	B	9,000	1 yr.	36 credits
(111)	100	10	A	28,000	1 yr.	51 qt. hrs.
(114)	167	12	C	6,500	1 yr.	36 credits
(117)	89	12	A	34,600	2 yr.	63 qt. hrs.
(122)	114	9	A	23,200	1 yr.	36 credits

*Since the time this study was conducted, one of the schools in the sample extended its MLS programs from 36 to 48 hours.

VARIABLE CLASS II: ORGANIZATIONAL FACTORS

The following table contains those components which relate to the organizational variables. They fall into two major categories: (1) status of the school in the organization of the University and (2) technological capabilities of the school as evidence of status.

A. STATUS: ORGANIZATIONAL

1. Organizational position.
"What is the organizational position of the library school in the University structure:"

   a. Full status graduate school
   b. Department or division within another graduate school
   c. Other.

The responses are indicated on the following table as follows:

G.S.: Full status graduate
Dept.: Department within another graduate school or college, division of a department or school within a graduate school.

For the purpose of this study, the question was asked as an indicator of status in the organization of the University and it was assumed that full status as a graduate school is higher in the organizational structure than any other classification.

2. Perceptives of the University community about the library school as evidenced by the following:

   a. Does the head of the library school sit in session with other deans or directors in the University?

   b. Is the library school represented on the Graduate Council of the University (or its counterpart)?

   c. Is there more than one level in the administrative hierarchy between the head of the library school and the president or chancellor of the university?

   d. Is the graduate library school in the same or higher position in the university as such other graduate professional schools as social work, business and public administration, etc.?

   e. Has the library school received any significant university-wide publicity in the past two years (for example, an article in a university or student publication)?

   f. Does the library school have any formal current projects with other schools or departments in the university?

3. Title of the chief administrator of the library school?

Dean	or	Acting Dean
Director	or	Acting Director
Chair	or	Acting Chair

4. The amount of sponsored project funds that the library school has received in the past two years (on the assumption that grant awards enhance the status of the school). The amounts have been rounded and are reported in thousand.

5. The presence of a distinct professional library for the library school with its own professional staff.

6. The presence of a post-masters program, either Advanced Certificate or PhD.

B. STATUS TECHNOLOGICAL: The status of the library school as evidenced by the ways in which technological capabilities and interdepartmental relationships are structured.

1. Facilities for primary use by the library school

   a. "Does the library school have computer access for student use?" (All schools answered "yes" to this question)

   b. "If yes, is the computer terminal in or adjacent to the library school facility?"

2. Relationship with other technology-oriented departments in the University. "Are students referred to other departments for their technology courses?"

VARIABLE CLASS II: ORGANIZATIONAL STATUS FACTORS

Following are the full designations for each of the columns in the table:

EXPLANATION OF GOLUMN HEADINGS	EXPLANATION OF TABULATION *
1. Graduate School or department	X indicates Graduate School
2. Head of Library School sits in session with other heads	X indicates "yes"
3. Library School is represented on Graduate Council	X indicates "yes"
4. More than one level in administration hierachy between head of library school and top University administrator	X indicates "no"
5. Library school has the same or higher status than other graduate professional schools	X indicates "yes"
6. Library school has received significant University-wide publicity	X indicates "yes"
7. Library school has current formal projects with other departments	X indicates "yes"
8. Title of the head Library School Administrator	X indicates "dean" or "acting dean"
9. Amount of sponsored research/project funds received (past 2 years)	Reported in thousands
10. Library school has its own professional library	X indicates "yes"
11. PhD Programs	X indicates "yes"
12. Advanced Status re Technological Capabilities	X indicates "yes"
13. Library school has it own or nearby access to computer capabilities	X indicates "yes"
14. Students are referred to other departments for technology courses	X indicates "no"

*This table has been tabulated so the HIGH STATUS response are shown by an "X". Blanks indicate a lower status response. If there is no response to the question, a dash is shown.

TABLE 8

STATUS IN UNIVERSITY ORGANIZATIONAL STATUS FACTORS

	STATUS IN UNIVERSITY												STATUS TECHNOLOGY	
SCHOOL CODE	(*)GRAD SCHOOL OR DEPT 1	HEAD SITS IN SESSION: (YES) 2	REP. ON GRAD COUNCIL (YES) 3	MORE THAN 1 LEVEL: (NO) 4	SAME/HIGHER POSITION: (YES) 5	UNIVERSITY PUBLICITY (YES) 6	PROJECTS WITH OTHERS: (YES) 7	TITLE ADN. (DEAN) 8	ANT. SPONSORED FUNDS (THOUSANDS) 9	OWN LIBRARY: (YES) 10	PhD: (YES) 11	ADVANCED CERTIFICATE (YES) 12	COMP. ACCESS. (YES) 13	STUDENTS REFERRED 14
07	X	X	X	X	X	X		X	46	X		X	X	
11	X	X	X	X	X	X	X	X	160	X	X	X	X	
13			X		X	X	X		1000	X		X	X	
15	X	X	N/A	X	X	X	X	X			X	X	X	
17	X	X	X	X	X	X	X	X	82		X		X	X
20	X	X	X	X	X	X	X	X	390		X	X	X	
22	X	X	X	X	X	X		X	600	X	X	X	X	
26	X	X	X	X	X	X		X	175	X	X	X	X	
19	X	X	X		X	X	X	X	22				X	
31	X	X	X	X	X	X	X	X	61	X	X	X	X	
34	X	X	X	X	X	X		X	25			X	X	
37	X	X	X	X	X	X	X	X	50	X		X	X	-
39	X	X	X	X	X	X	X	X		X			X	
45	X	X	X	X	X	X	X	X	320	X		X	X	
47	X	X	X		X	X	X	X	424	X	X		X	X
49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	X	X	X	X	X	X		X	350	X	X		X	
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56					X	X	X		16	X			X	
61	X	X	X		X	X	X	X	150			X	X	
64	X	X	X	X	X		X	X		X		X	X	X

SCHOOL CODE	(*)GRAD SCHOOL OR DEPT 1	HEAD SITS IN SESSION: (YES) 2	REP. ON GRAD COUNCIL (YES) 3	MORE THAN 1 LEVEL: (NO) 4	SAME/HIGHER POSITION: (YES) 5	UNIVERSITY PUBLICITY (YES) 6	PROJECTS WITH OTHERS: (YES) 7	TITLE ADM. (DEAN) 8	ANT. SPONSORED FUNDS (THOUSANDS) 9	OWN LIBRARY: (YES) 10	PhD: (YES) 11	ADVANCED CERTIFICATE (YES) 12	COMP. ACCESS. (YES) 13	STUDENTS REFERRED 14
66	X	X			X		X	X	125		X	X	X	X
68	X		X			X	X		25	X		X	X	
70	X	X	X	X	X	X				X			X	
73	X	X	X	X	X		X	X	40			X	X	
75					X	X	X		60	X		X	X	
79	X	X	X	X	X	X	X	X	1800		X	X	X	
82	X	X	X	X	X			X	64	X	X	X	X	
85		X	X			X	X		50	X	X	X		
88		X	X				X		38			X	X	
90	X		N/A	X	X	X	X		8	X		X	X	
92			N/A			X	X	X	65	X	X	X	X	X

SCHOOLS NOT IN SAMPLE

SCHOOL CODE	STATUS IN UNIVERSITY												STATUS TECHNOLOGY	
	(*)GRAD SCHOOL OR DEPT 1	HEAD SITS IN SESSION: (YES) 2	REP. ON GRAD COUNCIL (YES) 3	MORE THAN 1 LEVEL: (NO) 4	SAME/HIGHER POSITION: (YES) 5	UNIVERSITY PUBLICITY (YES) 6	PROJECTS WITH OTHERS: (YES) 7	TITLE ADM. (DEAN) 8	ANT. SPONSORED FUNDS (THOUSANDS) 9	LOCAL LIBRARY: (YES) 10	PhD: (YES) 11	ADVANCED CERTIFICATE (YES) 12	COMP. ACCESS. (YES) 13	STUDENTS REFERRED 14
(34)	X	X	X	X	X	X		X	46			X	X	X
(36)	X	X	X		X	X		X	68	X			X	
(38)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(40)		X				X	X			X			X	
(42)		X		X	X	X	X		45	X			X	X
(45)	X	X	X	X	X		X	X	300	X	X	X	X	X
(47)	X	X	X	X	X	X	X	X	100		X	X	X	
(53)	X	X	X	X	X	X	X	X	50		X	X	X	
(57)			X			X				X		X	X	
(59)	X	X	X	X	N/A	X	X						X	
(63)	X	X	X	X	X	X	X	X	250	X	X	X	X	
(66)	X	X			X	X	X			X			X	
(69)	X	X	X	X	X	X	X	X	50				X	
(73)	X	X	X		X		X	X	249	X	X		X	
(75)	X	X			X		X	X	140	X	X		X	
(77)	X	X	X		X					X	X	X	X	
(79)	X	X	X	X	X	X	X	X	20	X			X	
(86)	X	X	X	X	X	X	X	X	320	X		X	X	
(89)		X				X	X						X	X
(91)	X	X	X	X	X	X	X	X	616	X	X	X	X	
(93)	X	X	X		X	X	X	X	6	X		X	X	

SCHOOL CODE	(*)GRAD SCHOOL OR DEPT 1	HEAD SITS IN SESSION: (YES) 2	REP. ON GRAD COUNCIL (YES) 3	MORE THAN 1 LEVEL: (NO) 4	SAME/HIGHER POSITION: (YES) 5	UNIVERSITY PUBLICITY (YES) 6	PROJECTS WITH OTHERS: (YES) 7	TITLE ADM. (DEAN) 8	ANT. SPONSORED FUNDS (THOUSANDS) 9	OWN LIBRARY: (YES) 10	PhD: (YES) 11	ADVANCED CERTIFICATE (YES) 12	COMP. ACCESS. (YES) 13	STUDENTS REFERRED 14
(96)	X	X	X	X	X	X	X	X	44				X	
(102)	X	X	N/A	X	X	X		X	190	X	X		X	
(73)	X	X	X	X	X		X	X	40			X	X	
(106)	X	X	X	X	X	X	X	X		X	X		X	
(108)		X	X		X		X		5	X		X	X	X
(111)	X		X	X	X		X						X	
(114)	X	X	X	X	X	X	X		200	X	X	X	X	
(117)		X	X			X			370				X	
(112)	X	X	X	X	X	X	X	X		X		X	X	

Note: When the date was laid out on this table, it became apparent that the last item (whether students are referred to other departments for technology course) could not be considered a status factor. It seems instead to relate to the emphasis the school places on technology within its own program.

Questionnaire Comments:

"Does your school have its own library?"

Several of the schools reporting "no" to this question added that they do have a "laboratory collection" of materials or a resource center. One school reported that they had had their own library in the past and will soon have it again.

VARIABLE CLASS III: TECHNOLOGICAL ORIENTATION

The table which follows lists the survey components relating to technological factors in the Library School environments. They are divided into three areas.

A. PROGRAM COMPONENTS which concern the academic program of the school:

1. Number of required technology courses within or outside the library school.

   a. "Is at least one general overview technology course required for all students in the Master's program?"

   b. "More than one course?"

2. Nature of outside contribution to the student experience.

   a. "Do you have regular or periodic colloquia for students and and faculty?"

   b. "If yes, how many colloquia have been held this year or are scheduled for the rest of this year that specifically concern technological applications to libraries?"

3. Preparation of students to work in non-library technological environment.

   a. "Will your students be prepared to work in some setting other than in a library?"

   b. "Did any of your graduates from the last two years find jobs in non-library situations?"

B. ACTIVITY COMPONENTS which include faculty activities relating to technology.

1. Nature of sponsored projects

   a. "If your school has received sponsored project awards, please indicate topic areas that are technology related."

2. Nature of continuing education offerings.

   a. "Does the faculty of your library school conduct any kind of continuing education activities for professional practitioners?"

   b. "If yes, please list a sample title of those activities that are technology-related."

C. PROCESS COMPONENTS which include past, current and anticipated changes in the Library School.

1. Changes that have taken place in the past five years:

   a. Change of name referring to information science or technology?

b. Addition of faculty with technological expertise?

c. Acquisition of technology for teaching or research purposes?

d. Liaison with other areas of the university for the sharing of technological facilities?

e. Changes in course requirements for students to emphasize technological uses in libraries?

f. Changes in recruitment or admission policies that reflect an emphasis on technology?

g. Other changes.

2 Future plans for changes that reflect the development of technological applications in libraries.

a. "Does your school have any definite plans (for the next two years) that reflect an effort to prepare students for work in a technological environment?

Following are the full descriptions for each of the columns in the table:

Program Components

1. Requirement of at least one technology course

2. Requirement of more than one technology course

3. Colloquia as part of student experience

4. Number of technology-related colloquia during the past year.

5. Response to question about preparation of students to work in non-library technological work environment

6. Graduates placed in non-library settings (Specific responses reported under comments)

Activity Components

7. Response to question about technology-related research. (Specific response under comments following the Table).

8. Response to question about technology related continuing education offerings. (Specific responses are reported under Comments.)

Process Components: Responses to the following changes that have taken place in the past five years.

9. Change of name referring to information science

10. Addition of faculty with technological expertise

11. Acquisition of technology for student/faculty

12. Sharing of technological resources with other departments

13. Changes in course requirements re technology

All indicated responses on the following table represent a positive ORIENTATION TOWARDS TECHNOLOGY.

14. Changes in recruitment or admissions policies

15. Response to question of whether the school has plans for future changes relative to technology.

(Comments concerning both current and anticipation changes are reported under COMMENTS following the Table.)

TABLE 9

TECHNOLOGICAL ORIENTATION

SCHOOLS IN SAMPLE

	PROGRAM COMPONENTS						ACTIVITY COMPONENTS		PROCESS COMPONENTS						
SCHOOL CODE	TECH. COURSE REQUIRED	MORE THAN ONE REQUIRED	COLLOQUIA	NUMBER TECH-RELATED	STUDENT PREPARATION	GRADS IN NON-LIBRARY	TECH-RELATED RESEARCH	TECH-CONTINUING ED.	NAME CHANGE	TECH-FACULTY	ACQUIRED TECHNOLOGY	TECHNOLOGY SHARING	CHANGED COURSE REQUIREMENT	CHANGE ADMISSIONS	FUTURE CHANGE PLANNED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
07	X		X	4	X	X		X			X			X	X
11	X	X	X	6	X	X	X	X		X	X	X	X	X	X
13	X				X	X		X	X	X	X	X	X	X	X
15	X		X	1	X	X		X			X	X	X	X	X
17			X	1			X	X			X	X			
20	X		X	2	X	X	X	X	X	X	X	X	X	X	X
22			X	6	X	X	X	X	X	X	X				
26			X	5		X	X	X		X	X				X
28					X	X		X		X	X	X	X		
31	X		X	2	X	X		X	X	X	X	X	X		X
34	X		X		X	X	X	X		X	X	X	X	X	X
37			X	3	X	X		X			X	X	X	X	X
39	X		X	1	X	X		X		X	X	X	X	X	X
45			X	4	X	X	X	X		X	X	X			X
47			X	3	X	X		X		X	X	X	X		X
49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	X		X	2	X	X		X		X	X	X	X		X
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66			X	0	X			X		X	X	X			X
61			X	1	X	X		X	X	X	X	X	X		X

	PROGRAM COMPONENTS						ACTIVITY COMPONENTS		PROCESS COMPONENTS						
SCHOOL CODE	TECH. COURSE REQUIRED	MORE THAN ONE REQUIRED	COLLOQUIA	NUMBER TECH-RELATED	STUDENT PREPARATION	GRADS IN NON-LIBRARY	TECH-RELATED RESEARCH	TECH-CONTINUING ED.	NAME CHANGE	TECH-FACULTY	ACQUIRED TECHNOLOGY	TECHNOLOGY SHARING	CHANGED COURSE REQUIREMENT	CHANGE ADMISSIONS	FUTURE CHANGE PLANNED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
64			X	0	X	X		X		X	X	X	X		
66			X	6	X	X	X	X	X		X	X			X
68	X		X	1	X	X	X	X	X	X	X	X	X	X	X
70	X	X	X	6	X	X		X		X	X	X	X		X
73	X		X	0	X	X		X		X	X	X	X	.	X
75	X		X	1	X	X		X	X	X	X	X			X
59			X	10	X	X	X	X	X	X	X	X	X	X	X
82	X		X	10	X	X		X			X	X	X	X	X
85			X	0	X	X	X	X		X	X	X	X		X
88			X	3	X	X		X		X	X	X	X		X
90			X	1	X	X	X	X		X	X	X			X
92			X	2	X	X		X			X	X			X

SCHOOL NOT IN SAMPLE

	PROGRAM COMPONENTS						ACTIVITY COMPONENTS		PROCESS COMPONENTS						
SCHOOL CODE	TECH. COURSE REQUIRED	MORE THAN ONE REQUIRED	COLLOQUIA	NUMBER TECH-RELATED	STUDENT PREPARATION	GRADS IN NON-LIBRARY	TECH-RELATED RESEARCH	TECH-CONTINUING ED.	NAME CHANGE	TECH-FACULTY	ACQUIRED TECHNOLOGY	TECHNOLOGY SHARING	CHANGED COURSE REQUIREMENT	CHANGE ADMISSIONS	FUTURE CHANGE PLANNED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(34)					X	X	X	X		X	X				X
(36)	X	X	X	3	X	X		X		X	X	X	X		X
(38)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(40)			X	5	X	X		X			X	X		X	X
(42)	X		X	1	X	X		X			X				X
(45)			X	3	X	X		X	X	X	X	X	X		X
(47)	X		X	5	X	X	X	X	X	X	X	X	X	X	X
(53)			X	1	X	X	X	X		X	X	X			
(57)			X	3	X	X		X		X	X		X		X
(59)			X	0	X	X		X			X	X	X		X
(63)	X		X	3	X	X		X	X	X	X	X	X	X	X
(66)			X	3	X	X		X		X	X	X		X	X
(69)			X	5	X	X		X		X	X	X	X	X	X
(73)			X	2	X	X		X		X	X	X			X
(75)			X	1	X	X	X	X		X	X	X	X		X
(77)	X				X	X		X		X	X		X		X
(79)	X		X	8	X	X	X	X		X	X	X	X	X	X
(86)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(89)	X		X	0	X	X		X		X	X	X	X	X	X
(91)	X		X	10	X	X	X	X	X	X	X	X	X	X	X

	PROGRAM COMPONENTS						ACTIVITY COMPONENTS		PROCESS COMPONENTS						
SCHOOL CODE	TECH. COURSE REQUIRED	MORE THAN ONE REQUIRED	COLLOQUIA	NUMBER TECH-RELATED	STUDENT PREPARATION	GRADS IN NON-LIBRARY	TECH-RELATED RESEARCH	TECH-CONTINUING ED.	NAME CHANGE	TECH-FACULTY	ACQUIRED TECHNOLOGY	TECHNOLOGY SHARING	CHANGED COURSE REQUIREMENT	CHANGE ADMISSIONS	FUTURE CHANGE PLANNED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(93)	X		X	2	X	X		X		X	X	X			
(96)			X	2	X	X	X	X		X	X	X	X		X
(102)					X	X		X	X	X	X	X	X	X	X
(106)	X	X			X	X		X	X	X	X	X	X	X	X
(108)	X	X	X	1	X	X		X	X	X	X	X		X	X
(111)			X	2	X	X		X		X	X	X	X		X
(114)	X		X	2	X	X		X		X	X	X	X	X	X
(117)			X	0	X	X		X		X	X	X	X		
(122)			X	1	X	X		X		X	X	X	X		

Figure 4-1 Futher Information on Changes in Names of Library Schools

(Reprinted from American Libraries, September 1980, pp. 505-6)

This article is included in the results of the Institutional Survey because of its relevance to the issue of changes occurring in library education. Permission to reprint has been granted by the American Library Association. (Copyright 1980).

Changes in school names reflect information age

With the marriage of library and information science, library schools nationwide are changing their names. Shakespeare notwithstanding—"a rose by any other name would smell as sweet"—what is the prevailing nomenclature, and what trends are discernible?

As of February 1980, 61 U.S. and seven Canadian master's degree programs were accredited by the American Library Association. This compares with 43 U.S. and five Canadian master's programs in 1970.

Ten years ago, five of these schools (four in the U.S. and one in Canada) included the word "information" in their names. By February of this year, the figure had increased to 23 (22 in the U.S. and one in Canada). Thus in 10 years, the number of schools with "information" in their names increased from 10 to 34 percent. (See accompanying table for names in 1970 and 1980.)

Of the remaining 43 accredited schools, 26 use the phrase "library science"; three, "library service"; five, "librarianship"; seven, "library school"; and one each, "library media," "library studies," "library science and instructional technology," and "bibliothéconomie."

Indiana University and the University of Illinois/Urbana-Champaign recently proposed adding "information science" to their library school names. Both changes are awaiting administrative approval.

More than half the programs whose names include the word "information" are clustered in the Northeast. Seventeen percent are located in the West; 13 percent are in the Southeast; and the rest are distributed equally throughout the Midwest, Southwest, and Canada.

—Lawrence Auld, assistant dean, Graduate School of Library Science, University of Illinois/Urbana-Champaign

Schools with "information" in their names*

1970	1980
Atlanta University School of Library Service	School of Library and Information Studies
	Brigham Young University School of Library and Information Sciences**
University of California, Berkeley School of Librarianship	School of Library and Information Studies
University of California, Los Angeles Graduate School of Library Service	Graduate School of Library and Information Science
Catholic University of America Department of Library Science	Graduate Department of Library and Information Science
University of Denver Graduate School of Librarianship	Graduate School of Librarianship and Information Management
Drexel Institute of Technology Graduate School of Library Science	Drexel University School of Library and Information Science
University of Maryland School of Library and Information Services	College of Library and Information Services
University of Missouri School of Library and Information Science	School of Library and Information Science
State University of New York, Albany School of Library Science	School of Library and Information Science
	State University of New York, Buffalo School of Information and Library Studies
State University College (Geneseo) School of Library Science	State University of New York, College of Arts and Science, Geneseo School of Library and Information Science
North Texas State University Department of Library Service	School of Library and Information Sciences
University of Pittsburgh Graduate School of Library and Information Sciences	School of Library and Information Sciences
Pratt Institute Graduate School of Library and Information Science	Graduate School of Library and Information Science
	Queens College, City University of New York Graduate School of Library and Information Studies
Rutgers University Graduate School of Library Service	Graduate School of Library and Information Studies
	St. John's University Division of Library and Information Science
Simmons College School of Library Science	School of Library and Information Science
	University of South Florida Graduate Department of Library, Media and Information Studies
Syracuse University School of Library Science	School of Information Studies
	University of Tennessee, Knoxville Graduate School of Library and Information Science

*Clarion State College School of Library Science dropped the term "Information Science" from its name in 1977.

**Brigham Young University School of Library and Information Sciences has had "Information Science" in its name since 1970 when it was the Graduate Department of Library and Information Sciences.

RESPONDENT COMMENTS

Technology course requirements for students:

Many of the respondents offered comments that indicate that even though technology courses are not required, they are nevertheless given importance and emphasis. A sample of the comments indicates that course requirements are currently under consideration, that technological applications are integrated into existing required courses or core curricula, that technology courses while not required are recommended, or that students must demonstrate competency in skills related to technological application (e.g. data base searching).

Colloquia related to technology:

Topics of the colloquia in general fall into the following areas: (1) automated systems in libraries (2) on-line searching, (3) networking, (4) word processing, (5) computer programming, and (6) other computer applications in libraries.

Graduates placed in non-library work environments:

Media (school, commerical) such as newspaper, radio and television productions

Law firms, information centers of various kinds

Research, indexing and abstracting positions

Management, programming, publishing

Policy advisors, editors, system analysts

Subject areas of faculty research projects related to technology:

Mini computers, automation of library functions, biometrics, information retrieval, preservation of materials, data base indexing, networking, computers in education, bibliographic searching, and evaluation of systems.

Nature of Continuing education offerings:

Technology in libraries, on-line searching, automated cataloging, instructional design, A.V. media, computer programming, data base development/management networking

Other changes that have taken place within the library schools over the past five years include:

Upgrading of technological facilities, acquisition of OCLC terminals, a new degree program added (for example, an M.S. in information science or an undergraduate program), the acquisition of a minicomputer.

A more detailed breakdown of responses on these questions is included in Appendix E.

TABLE 10

SUMMARY OF INSTITUTIONAL SURVEY DATA
VARIABLE CLASSES II AND III

STATUS IN UNIVERSITY
(Sampled and Non-sampled Schools)*

Graduate School or department/other	GRADUATE SCHOOL 47	OTHER 12
Head of school sits with other heads	YES 51	NO 8
School represented on Graduate Council	YES 47	NO 8
More than one level to top University administrator	YES 22	NO 37
School has same or higher status than other schools	YES 50	NO 8
School has received University publicity	YES 47	NO 12
School has formal projects with other departments	YES 46	NO 13
Title of school administrator	DEAN 40	OTHER 19
Sponsored research and projects	YES 46	NO 18
Average of sponsored awards	$156,525**	
School has own professional library	YES 39	NO 20
PhD program	YES 25	NO 34
Advanced Certificate	YES 34	NO 23
School has access to computer capabilities	YES 58	NO 1
Students referred outside for technology courses	YES 10	NO 48

*Total number of schools responding was 59.

**The average listed above is for all schools, including those without sponsored research. The average among schools reporting sponsored research was $200,761. The total amount reported by all schools was $10,255,000.00.

TECHNOLOGICAL ORIENTATION

	YES	NO
One technology course required	26	31
More than one course required	5	52
Collaquia part of program	51	6
Technology-related collaquia during past year	43	14
Students prepared for non-library technology work	55	2
Graduates placed in non-technology setting	55	2
Faculty conducts technology-related research	19	38
Technology related continuing ed. programs	57	0
Recent (5 yrs) change of name	16	41
Addition of technology faculty	47	10
Acquisition of technology	57	0
Sharing of technology resources	50	7
Changes in course requirements	39	18
Changes in recruitment/admissions	23	34
Plans underway for future changes	49	8

VARIABLE CLASS IV

RESISTANCE FACTORS

In order to determine if the perception of students about the organizational climate in their own library school might be a factor in the formation of a resistance-to-technology response, Item 47 on the Student Questionnaire was further analyzed to determine if differences could be identified between schools in the sample. The questionnaire item had presented five pairs of adjectives describing the school environment and students were asked to choose one of the pair. The pairs of adjectives were:

a. authoritarian/pariticipatory
b. open/closed
c. innovative/traditional
d. social/isolating
e. permissive/restrictive

Each pair of adjectives was correlated with the schools in the survey and crosstabulated with the Resistance Index. Frequency distribution by schools are presented in the following table, along with the gamma and significance level where significance was indicated.

TABLE 11

BREAKDOWN OF ADJECTIVE PAIRS/RESISTANCE BY SCHOOLS*

(ITEM 47: STUDENT QUESTIONNAIRE)

SCHOOL CODE	SAMPLE SIZE	PAIR A				PAIR B				PAIR C				PAIR D				PAIR E			
		FREQ. DIST.		CROSSTAB/RESIST. GAMMA	SIGNIFICANCE LEVEL	FREQ. DIST.		GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	FREQ. DIST.		GAMMA CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	FREQ. DIST.		GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	FREQ. DIST.		GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL
		AUTHORITARIAN	PARTICIPATORY			OPEN	CLOSED			INNOVATIVE	TRADITIONAL			SOCIAL	ISOLATING			RESTRICTIVE	PERMISSIVE		
07	59	42	58			69	31	.60	.05	42	58			81	19			58	42		
11	39	22	78			81	19			47	53			60	40			31	69		
13	178	28	72			82	18			44	56			78	22			35	65		
15	28	50	50			48	52			54	46			33	67	.77	.05	48	52	-.64	.06
17	38	14	86			87	13			62	38			87	13			19	81		
20	73	10	90			90	10			50	50	-.52	.05	92	8			17	83		
22	80	34	66			77	23	.51	.05	79	21			65	35	.51	.05	31	69		
26	27	33	67			85	15			23	17			85	15			39	61		
28	32	9	91			90	10			22	78			81	19			23	77		
31	89	14	86			85	15			45	55			91	9			13	87		
34	116	35	65			73	27			36	64			74	26			40	60		
37	100	25	75			84	16			54	46			81	19			29	71		
39	76	22	78			88	12			43	57			89	11			28	72		
45	58	12	88			76	24			44	56			86	14			14	86		
47	56	11	89			86	14	.59	.06	71	29			78	22	.57	.01	18	82	-.49	.
49	26	23	77			73	27			31	69			73	27			16	84		
51	79	35	65			74	26			49	51			81	19			30	70		

*Gammas for only those crosstabulations that showed significance are reported in this table.

**Crosstab tables for these items which did show significance are included in Appendix F.

SCHOOL CODE	SAMPLE SIZE	PAIR A				PAIR B				PAIR C				PAIR D				PAIR E			
		FREQ. DIST.				FREQ. DIST.				FREQ. DIST.				FREQ. DIST.				FREQ. DIST.			
		AUTHORITARIAN	PARTICIPATORY	CROSSTAB/RESIST. GAMMA	SIGNIFICANCE LEVEL	OPEN	CLOSED	GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	INNOVATIVE	TRADITIONAL	GAMMA CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	SOCIAL	ISOLATING	GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL	RESTRICTIVE	PERMISSIVE	GAMMA: CROSSTAB/RESIST.	SIGNIFICANCE LEVEL
57	24	38	62	-.62	.05	61	39	.82	.01	32	68	.85	.05	78	22			48	52	-.87	.01
61	19	21	79			74	26			68	32			79	21			32	68		
64	138	46	54			68	32			24	76			79	21			50	50		
66	170	24	76	-.36	.05	84	16			63	37			73	27	-.05	.06	27	73		
68	25	13	87			91	9			70	30			87	13			13	87		
70	56	20	80			84	16			43	57			87	13			22	78		
73	92	11	89			91	9			85	15			93	7			17	83		
75	22	29	71			86	14			57	43			95	5			19	81		
79	37	3	97			97	3			100	0			87	13			0	100		
82	86	38	62	-.22	.05	71	29			43	57			68	32			41	59	-.24	.0
85	48	13	87			83	17			46	54			93	7			24	76		
88	40	27	73	-.49	.06	87	13	.71	.01	60	40	.34	.05	92	8			28	72	-.46	.(
90	38	15	85			82	18			53	47			97	3			27	73	-.70	.(
92	61	31	69			78	22			19	81			81	19			26	74		

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In the analysis of this variable for the total respondent student population, no significant relationship was shown between perceptions of organizational environment and student resistance. However, the previous study of librarians and resistance to technology, as well as studies reported in the literature on the diffusion of innovation, suggested that organizational factors are strongly associated with resistance to or acceptance of innovation. It was for this reason that a further exploratory analysis of data was conducted to determine if the organizational factor might be operating more strongly in some schools than in others and if the importance of this factor might have been obscured in the general analysis.

The results of this secondary analysis indicated that at least for some schools, the perceptions of students about the climate or "personality" of the school may be associated with student resistance. However, the results of this investigation must be interpreted with caution. This analysis required 155 significance tests. With a significance level of .05, one out of 20 tests, on the average, will show significance where in fact it does not exist. In this analysis, only 23 of the 155 tests were found to be significant. On the other hand, those 23 significant results were in 10 of the 31 schools and significance was found under conditions which would make significance less likely, that is, the 31 x 2 x 3 table (schools by adjective pairs by Resistance groups) contained cells with low N's.

The 10 schools which showed this statistical result were reviewed to see if any unique institutional variable would emerge (i.e., the crosstabulation with the Resistance Index, demographic data, status factors and technology orientation factors) but no set of variables could be identified that would explain this occurrence.

The next step was to conduct a further analysis of the faculty survey. Even though the sample sizes of faculty responses from individual schools was too small to produces significant statistical evidence about this variable, a comparison analysis was conducted to try to explain the student survey findings. The results of this analysis showed that in 13 of the sampled schools, at least one of the organizational environment components was related to faculty resistance. Four of those schools were the same as the schools in the student analysis where a relationship between environmental perceptions and student resistance were evidenced. The results of the analysis of faculty resistance by adjective pairs across schools is included in Appendix G.

While the results of these analyses do not indicate a general trend in all library schools, there are indications that this variable may be more important that was evidenced by the preliminary across-schools analysis and that further study and interpretation is needed if this factor is to be understood. Following are some observations and suggested hypotheses that emerged from the data analysis:

- A least in some schools, there is an organizational variable operating that affects and may be manifested by student attitudes and resistance toward technology. The construct of that variable (that is, whether it concerns the permissiveness, innovativeness, sociability, etc. of the environment) could not be identified in this study and may need to be clarified if it is to be examined and understood.

- While the correlations were in both directions in some instances (for example, high resistance was correlated with perceptions of school innovativeness and with perceptions of school traditionalism), the results indicate that a relationship exists between resistance and perception. The apparent contradion suggests an area for further study rather than a dismissal of the finding.

- In general, the results suggest the following student-related hypotheses:

  1. High resistors see the library school as "social" rather than "isolating", suggesting that resistors may have a greater need for interpersonal comfort and may therefore perceive or "create" a socially comfortable school environment.

  2. High resistors perceive the library school environment as "open" rather than "closed" and as "participatory" rather than "authoritarian", suggesting that library school students may be happy because they are not being confronted with their resistance to technology nor being pressured by the school to become involved in technology related courses and activities. For example, "open" and "participatory" may be a way of describing a program that allows students to avoid involvement with technology and to pursue a "humanistic" approach to librarianship.

  3. Library schools seem to vary in the extent to which the organizational climate affects student attitudes. The factors that explain why the climate in some schools produces this effect could not be identified in this study.

TABLE 12

DISTRIBUTION ON RESISTANCE INDEX BY SCHOOLS: STUDENT SURVEY

The following table shows the frequency distributions on the Resistance Index across the sampled schools.

SCHOOL CODE	RESISTANCE GROUPS LOW	MED	HIGH	VALID CASES MISSING	SCHOOL CODE	RESISTANCE GROUPS LOW	MED	HIGH	VALID CASES MISSING
07	19.3	50.9	29.8	57/2	51	27.0	52.7	20.3	74/5
11	18.9	62.2	18.9	37/2	56	30.4	34.8	34.8	23/1
13	31.8	44.5	23.7	173/5	61	15.8	57.9	26.3	19/0
15	39.3	25.0	35.7	28/0	64	38.3	39.8	21.8	133/5
17	18.9	37.8	43.2	37/1	66	25.3	47.5	27.2	158/12
20	24.3	44.3	31.4	70/3	68	50.0	37.5	12.5	24/1
22	34.2	35.6	30.1	73/7	70	22.2	38.9	38.9	54/2
26	18.5	55.6	25.9	27/0	73	23.9	53.4	22.7	88/4
28	31.3	40.6	28.1	32/0	75	21.1	63.2	15.8	19/3
31	25.9	38.8	35.3	85/4	79	45.7	28.6	25.7	35/2
34	23.5	41.7	34.8	115/1	82	38.1	40.5	21.4	84/2
37	31.9	42.6	25.5	94/6	85	41.9	41.9	16.3	43/54
39	23.0	56.8	20.3	74/2	88	17.1	44.7	38.2	76/4
45	31.6	45.6	22.8	57/1	90	24.3	45.9	29.7	37/1
47	28.6	51.8	19.6	56/0	92	25.9	40.7	33.3	54/7
49	15.4	53.8	30.8	26/0					

SUMMARY OF DISTRIBUTIONS

SCORE RANGE FOR LOW RESISTANCE (15.4 to 50)	NUMBER OF SCHOOLS	SCORE RANGE FOR HIGH RESISTANCE (12.5 to 43.2)	NUMBER OF SCHOOLS
15 to 25	16	12 to 20	7
26 to 35	9	21 to 30	15
36 to 45	4	31 to 40	8
over 45	2	over 40	1

Institutional Survey: Summary
Status in the University

- In general, gaduate library schools seem to enjoy a comparable status with other graduate schools in their own universities, but there are enough exceptions to suggest that this sensitive issue need to be of concern to the profession. Status within the university is not necessarily related to either the size of the student population nor the size of the university. In the context of this study, the effect of institutional status was not shown to relate to student resistance; yet status is described in the social science literature as a strong determinant of both individual and organizational behavior. The ways in which this dynamic operates to encourage or deter organizational change in library schools and its relationship to the status of the profession as a whole are important areas for further study.

- From the responses on the Institutional Survey, library education has received over ten million dollars in external funding over the past two years. Forty-six schools reported that they have received sponsored awards. There is no apparent relationship between other status factors and the receipt of external funding.

Technological Orientation

- All but one school in the survey reported that they do have computer capabilities for use by students and faculty.

- More than half of the schools who responded reported that students are not required to take a course in library technology (31 out of 57) and only five schools require more than one technology course. However, 55 schools reported that they are preparing students for work in non-library technological environments and that they have already placed their graduates in other than library positions.

- Many schools report past or impending changes in their name, in course requirements, and in their recruiting and admissions policies to reflect changes in the nature of the profession. All but eight schools reported that plans are currently underway in these and other areas relating to technology in libraries.

Resistance Factors

- In 10 of the 31 schools in the sample, there was a significant relationship beteeen the students' perception of the organizational climate of the library school and student resistance to technology. While this relationship did not emerge in the general analysis of all students across all the schools, it did emerge as a factor in one-third of the schools when a school-by-school analysis was conducted.

APPENDIX A

SAMPLING DESIGN

Student Population. The 61 schools were listed in descending order by size of student population and divided into four categories:

Category	Student population	Number of Schools
I	200 plus	15
II	151-200	15
III	101-150	16
IV	Under 100	15

Since 50% of the total population had been determined as the sample size, eight schools from each of the four groups, or 32 schools, were included in the sample.

Urbanicity. Urbanicity was determined by the population of city/town in which the school was located. There were five categories of urbanicity:

Category	Urban Population	Number of Schools	Percent
I	Under 24,999	8	13
II	25,000-49,999	10	16
III	50,000-99,999	8	13
IV	100,000-249,999	9	15
V	more than 250,000	26	43

The resulant number of schools to be included in the sample from each category of urbanicity is shown in the table below:

Category	n-Total Population	% Population	n-Sample
I	8	13	4
II	10	16	5
III	8	13	4
IV	9	15	5
V	26	43	14

Geographic Area. Finally, the population of schools was subdivided by geopraphic area, using the designations from the list of schools published by the American Library Association.

The geographic areas, number of schools and percentage of the total sample in each category is shown below:

Area	n(total population 61)	% of total population	n-sample
Northeast (NE)	18	30	10
Southeast (SE)	12	20	6
Midwest (MW)	17	27	9
Southwest (SW)	6	10	3
West (W)	8	13	4

Schools were then listed in alphabetic order and coded from 01 to 61. Numbers were drawn from a table of random numbers. As a school's number was pulled, it was set down in the appropriate category. The process was repeated until all three categories were filled. Thirty schools were pulled by using random numbers in the way described. The remaining two schools came from Category II for size, Category IV for urbanicity, and one each from the MW and one SW categories.

When the random numbers had been used, all but two schools had been pulled. There were only two schools remaining in Category II which met at criteria for urbanicity (Category IV). Of these two schools, one was located in the Midwest (the third category) and one was located in the Northwest. The school located in the Midwest which met all the criteria was pulled. Since location was the least important variable of the three, the remaining school, which met the two other criteria, was selected. The final sample showed eleven instead of ten schools located in the Northwest sector and two instead of three schools located in the Southwest.

SAMPLE OF SCHOOLS BY CATEGORIES

CODE	POPULATION CATEGORY	URBANICITY CATEGORY	GEOGRAPHIC CATEGORY
07	IV	III	MW
11	V	V	NE
13	I	V	MW
15	IV	V	MW
17	IV	I	NE
20	I	V	W
22	I	V	NE
26	II	III	SE
28	IV	V	W
31	II	II	MW
66	REFUSED PARTICIPATION		
34	I	II	MW
37	I	I	NE
39	II	IV	SW
45	II	IV	NE
47	III	V	NE
49	III	I	NE
51	II	II	SE
53	IV	III	SE
56	IV	II	MW
61	III	V	NE
64	I	I	MW
66	I	II	NE
68	IV	V	NE
70	III	V	W
73	III	IV	SE
75	III	V	SE
79	III	IV	NE
82	I	V	SW
85	IV	V	SE
88	II	V	MW
90	III	III	MW
92	II	IV	MW

APPENDIX B

QUESTIONNAIRE RESPONSES RATES: MAIL SURVEYS

	STUDENT			FACULTY			INSTITUTIONAL
SCHOOL CODE	NUMBER SENT	NUMBER RETURNED	PERCENT RETURNED	NUMBER SENT	NUMBER RETURNED	PERCENT RETURNED	SURVEY RETURNED
07	75	59	79	8	6	75	X
11	146	39	27	30	14	47	X
13	400	184	46	53	32	61	X
15	80	28	35	19	0	0	X
17	150	35	23	8	4	50	X
20	170	68	40	16	12	75	X
22	275	82	30	27	19	70	X
26	135	27	20	13	11	85	X
28	125	33	26	9	6	67	X
31	230	90	39	20	10	20	X
34	250	117	47	11	7	64	X
37	235	100	43	13	7	54	X
39	101	76	75	11	7	64	X
45	114	58	51	14	10	71	X
47	154	55	36	15	12	80	X
49	170	27	16	15	7	47	
51	150	79	53	20	18	90	X
53	50	0	0	11	0	0	
56	60	24	40	10	7	70	X
61	140	19	14	15	7	47	X
64	239	138	58	11	6	55	X
66	300	170	57	50	28	56	X
68	66	25	38	8	6	75	X
70	150	56	37	15	9	60	X
73	124	92	74	12	9	75	X
75	255	22	09	20	1	05	X
79	100	35	35	20	10	50	X
82	198	86	43	20	13	65	X
85	90	48	53	8	7	88	X
88	151	86	57	9	6	67	X
90	125	38	30	13	6	46	X
92	161	61	38	20	11	55	X
Total	5169	2060	40%	544	308	57%	94%

APPENDIX C

RESISTANCE INDEX: COMPARATIVE FREQUENCY DISTRIBUTIONS

The following tables show the frequency distributions on the Resistance Index (Items 1-12) for three populations: (1) Library School students; (2) library school faculty; (3) public librarians (data from previous study):

1. The future of our society depends on the advancement of technology.

POPULATION	FREQUENCIES				
	SA	A	M	D	SD*
STUDENTS	18	40	25	14	3
FACULTY	22	44	18	14	3
LIBRARIANS	22	37	22	13	6

2. Technological advancements have already dehumanized our lives.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	5	24	31	35	5
FACULTY	3	20	25	41	12
LIBRARIANS	8	34	21	23	13

3. Technology has the potential to control our lives.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	13	41	20	23	3
FACULTY	17	37	20	22	5
LIBRARIANS	33	42	10	11	5

4. I am going into librarianship to work with books, not machines.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	8	16	29	37	11
FACULTY	6	15	16	32	30
LIBRARIANS	16	25	14	24	21

5. I see technology as an extension of myself that enables me to see and hear better and to work more effectively.

POPULATION	FREQUENCIES				
	SA	A	M	D	SD*
STUDENTS	21	52	20	6	2
FACULTY	38	44	12	5	1
LIBRARIANS	30	43	17	7	3

*Asterisk indicates direction of HIGH RESISTANCE

6. Technology gives us more control or our environment.

POPULATION	FREQUENCIES				
	SA	A	M	D	SD*
STUDENTS	14	50	25	9	2
FACULTY	29	50	14	5	2
LIBRARIANS	19	41	20	15	6

7. The use of technology in libraries will become so complicated that the user will have to be specifically trained by the librarian to use it.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	6	32	25	33	5
FACULTY	7	23	17	39	13
LIBRARIANS	16	39	14	22	10

8. I worry that one day technology will reduce the number of jobs in libraries.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	6	21	23	43	7
FACULTY	2	13	17	49	20
LIBRARIANS	7	15	13	38	27

9. I think that if technology becomes an important part of the field of librarianship, interpersonal relationships will suffer.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	4	16	19	51	10
FACULTY	2	12	14	47	25
LIBRARIANS	7	19	13	32	29

10. Frankly, I would still prefer finding materials through use of the card catalog rather than through the mechanized devices.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	5	15	23	42	16
FACULTY	4	10	15	36	34
LIBRARIANS	9	17	19	28	27

11. Technological developments in libraries (such as computerized searches) will primarily benefit special interest groups and privileged classes of users.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	7	30	19	36	9
FACULTY	6	22	17	36	20
LIBRARIANS	9	28	11	28	24

12. Technology that will really change librarianship is far in the future, certainly not in this century.

POPULATION	FREQUENCIES				
	*SA	A	M	D	SD
STUDENTS	1	5	11	54	29
FACULTY	0	4	8	49	38
LIBRARIANS	4	12	13	37	35

APPENDIX D
CROSSTABULATIONS OF ITEMS 1-12 WITH RESISTANCE INDEX: FACULTY SURVEY

1. Future depends on technology

RESIST. GROUP	SA/A	M	D/SD
LOW	80.9	10.6	8.5*
MED	61.4	21.9	16.6
HIGH	31.3	31.3	37.6

2. Already dehumanized

RESIST. GROUP	SA/A	M	D/SD
LOW	* 7.1	18.4	74.5
MED	26.1	33.0	40.8
HIGH	58.4	27.1	14.6

3. Potential to control us

RESIST. GROUP	SA/A	M	D/SD
LOW	*41.8	18.4	39.7
MED	54.4	26.3	19.3
HIGH	85.1	8.5	6.4

4. Books not machines

RESIST. GROUP	SA/A	M	D/SD
LOW	* 6.4	10.6	83.0
MED	24.1	19.6	56.3
HIGH	59.6	25.5	14.9

5. Extension of self

RESIST. GROUP	SA/A	M	D/SD
LOW	97.2	2.8	0.0*
MED	79.0	14.9	6.2
HIGH	42.9	30.6	26.5

6. Technology gives control

RESIST GROUP	SA/A	M	D/SD
LOW	91.3	7.9	0.7*
MED	78.8	9.7	11.5
HIGH	45.8	41.7	12.5

7. Technology complicated

RESIST. GROUP	SA/A	M	D/SD
LOW	*14.9	14.2	70.9
MED	37.7	16.7	45.6
HIGH	57.2	26.5	16.3

8. Jobs worry

RESIST. GROUP	SA/A	M	D/SD
LOW	* 5.7	7.9	86.5
MED	16.7	20.2	63.1
HIGH	39.6	33.3	27.1

9. Interpersonal relationship will suffer

RESIST. GROUP	SA/A	M	D/SD
LOW	* 2.1	7.8	90.1
MED	14.8	17.4	67.8
HIGH	47.0	24.5	28.6

10. Prefer card catalog

RESIST. GROUP	SA/A	M	D/SD
LOW	* 2.8	5.7	91.5
MED	13.1	23.7	63.1
HIGH	49.0	24.5	26.5

11. Benefit special groups

RESIST. GROUP	SA/A	M	D/SD
LOW	* 7.1	17.7	75.2
MED	38.3	15.7	46.0
HIGH	63.8	17.0	19.2

12. Technology far in future

RESIST. GROUP	SA/A	M	D/SD
LOW	* 0.7	5.0	94.4
MED	6.2	7.0	86.9
HIGH	13.0	21.7	65.2

*Asterisk indicates direction of HIGH RESISTANCE

School Code: 47

Pair B

RESIST. GROUP	OPEN	CLOSED
HIGH	93.8	6.3
MED	89.7	10.3
LOW	63.6	36.4

valid cases: 56/Missing: -
gamma: .59 Sig: .06

Pair D

RESIST GROUP	SOCIAL	ISOLATING
HIGH	87.5	12.5
MED	85.7	14.3
LOW	45.5	54.5

valid cases: 55/Missing: 1
gamma: .57 Sig. .01

Pair E

RESIST. GROUP	RESTRICTIVE	PERMISSIVE
HIGH	12.5	87.5
MED	10.3	89.7
LOW	45.5	54.5

valid cases: 56/Missing: -
gamma: -.49 Sig. .05

School Code: 56

Pair A

RESIST GROUP	AUTHORI-TARIAN	PARTICI-PATORY
HIGH	25.0	75.0
MED	12.5	87.5
LOW	75.0	25.0

valid cases: 24/Missing: -
gamma: -.62 Sig. .05

Pair B

RESIST GROUP	OPEN	CLOSED
HIGH	37.5	12.5
MED	75.0	25.0
LOW	14.3	85.7

valid cases: 23/Missing: 1
gamma: .82 Sig. 01

Pair C

RESIST GROUP	INNOVATION	TRADITIONAL
HIGH	62.5	37.5
MED	28.6	71.4
LOW	.0	100

valid cases: 23/Missing: 1
gamma: .85 Sig. .05

Pair E

RESIST GROUP	RESTRICTIVE	PERMISSIVE
HIGH	16.7	83.3
MED	25.0	75.0
LOW	100.0	0.0

valid cases: 21/Missing: 3
gamma: .87 Sig. .01

APPENDIX E

INSTITUTIONAL SURVEY: RESPONDENT COMMENTS

QUESTION: Has the Library School received any University-wide publicity?

COMMENTS:

- Feature on new director; WHCLIS representative featured; bibliographic librarian program
- ALA accreditation; new institute on management; mainstreaming; fellowships awarded from DOE; publicity on workshops and lectures.
- Speakers; classes; scholarships
- Research and publications; Establishment of center for study of rural librarianships; AID grant.
- TALINET project and Publishing Institute
- Institutes on American Book Publishing
- Interview with Dean
- Publications; service activities of faculty
- Article on practicum; Databases; Conference; Director
- Article on faculty receiving distinguished Teaching Award
  Individual faculty featured
- Scholarship funds announced; interview with the Dean
- Appointment of new Dean: app't of new faculty member
- Article on faculty who received tchng assing. in Germany -1979
- New directions and opportunities within I.D. Lib/Info Studies.
  Books, awards, and symposia. Coverage increased in recent mo.
- Receiving accredition; 50th anniversary; Development of computer lab.
- In literary magazine of the college
- Loss of accreditation; Attempts to regain it
- Proposed undergraduate course
- Special on faculty members
- Fellowship grants
- Faculty's activities; Distinguished alumni; faculty retirement
- Grad. Student organization scholarship program
- Director elected to National office; Visiting faculty; Cooperative children's book center

. App't of dean; School selection to host May Hill Arbuthnot Honor lecture; Graduate elected as Library of Congress intern

QUESTION: Do you have any formal current projects with other schools or departments in University?

COMMENTS:

. Map librarianship with Geography Dept.

. JD/MLS

. Outside public libraries; corporations

. Latin Am. Studies; Grad. School of Mgnt; Dept. of History

. Law, Education, History, American Studies

. Grad. school of Business

. Degree/certification with School of Communication

. Teachers College

. Law; History: Institute of Gerentology; with many units on university-wide computer literacy program

. Audio-visual/media program with Education and Psychology

. Ed. Communications; cooperation with Pacific Islands Program which pays for some interdisciplinary summer session courses; field study/internship; opportunities with departmental collections; program specialization, such as the Gerentology Center

. Investigations on artificial intelligence as it may be applied to on-line information retrieval systems; Arrangement with the Coordinated Science Lab; Others are planned.

. Dual Masters with Music with specialization in Classical Lib.

. Course offered in cooperation with Academic Programs in Residence Halls.

. Cross listings of courses; Joint research projects.

. Sixth year program

. Cross-listed courses with Computer Science; Members from both departments do continuing ed. and consulting as a team.

. History-leads to 2 Master's degrees.

. Developing a center called Instructional Strategy Services with Education: Working with a number of units, including Computing Center to bring Chas. Babbage Institute for History of Information Processing to the University.

. Library Skills courses (2) for all students; Joint program teach courses in Gov. Doc. specifically for Journalism students.

. CBTE certification program for school media specialists (EDUCATION); Forensic Psychiatry with School of Criminal Justice; Institute for Gerontology with Social Welfare; New Center for Indexing and Abstracting Public Documents with Criminal Justice and Public Affairs.

. Doctoral Program with Higher Education

. Joint curriculum

. College of Ed; Business

. International projects with Univ. Ctr for International Studies. Others by ind. faculty.

. In talking stage

. Joint archival program with history; Innovative intermediate school (Education) -uses L.S. media, faculty, students

. History, double masters; other talks going on

. Joint program-MBA

. Faculty from other dept. teach courses, eg. Communications; Joint degree program under development (education, et al)

. Double degree in drug information (Pharmacology)

. Joint degree with English

. Co-sponsor courses with science ed. on environment materials

. Joint program and discussions with School Communication, education, computer science, business, department of cinema and T.V.

. Joint degree with History, Chemistry, Foreign Languages, and with University of Connecticut Law School

. Maxwell School of Public Admin, to offer courses in MBA program

. Joint MBA; H-B Fellowship cooperative with University Library

. Institute on selection and use of materials in Spanish with Education bi-lingual department

. Joint program with Higher Ed.

. Institute for Gerontology

. With English-Annual Children's Library Service; With Bus. Ad. - post Master's degree in Library Administration

. Cooperative Children's Book Center with Education; Research and Education Center on Aging with Social Work

. Internship for LS students in UWM Gold Meir Library; Cross listed courses with History and Education; Students in one major, Political Science, are required to take a LS course

Sponsored Research Awarded

- Forty-two schools reported that they have received sponsored research funds in the past two years.
- Amounts ranged from $6000 to $1,800,000
- Two schools reported amounts of a million dollars or more

Research projects concerned with technology:

- Mini-computer integration; Materials and Resources for the Handicapped;
- Sabattical for faculty to plan information courses
- Information Science Automation
- Biometrics; Structure of Literature; ?
- OCLC; Information retrieval -on-line-terminal use
- Preservation
- TALINET; Training for Library Chnage; HEA 11B Fellowships
- Design and Assessment of Individualized Instruction in Data Base Access; Information and Knowledge-Biomedical Records
- Habits of Chemists in Searching their Literature; Public Library Services for Physically Handicapped
- none
- Implications of a 'paperless' society for library and information center services
- Economics of Library Subscriptions
- Setting up Technical Equipment Lab, eg. Decriters, OCLC terminals,
- Minority Fellowships; Faculty Redevelopment Project
- NSF grant/research project and HEW, Library Training Program
- Automated Bibl. Information Sys. in Developing Countries-- with special emphasis on Brazil.
- Training for minority students in information science
- Film literature index and Film Lit. current NEH grant
- Storage and Care of Non-Book Materials
- Internship program with Environ. Protection Agency; Literacy in Research Triangle Park

- Library resistance and technology; Computer simulation of Library networks; Display in Information transfer; Cost-benefit of Library resource sharing.

- Video and audio taping; Multi-media documentation

- Thesaurus construction; Future of technology-assessment

- State library personnel needs; Data Base training

- Training for handicapped and minorities

- Automation system; Computerized information; Faculty development project with neighboring library schools

- New England Citizen's Information Needs Study; Four doctoral student fellowships

- Fellowships; Workshop on aging

- Training; Video and Media Production

- Retrieval System Evaluation; Presearch interview for On-line systems; Operation of ERIC/IR Clearing House

- Computers in Education

- Patient Health CAre and the Libraries

- Library Instruction; Survey of On-line searching in Libraries; Dean's research assistantship funds

QUESTION: Does faculty conduct continuing education activities?

- Producing classroom radio presentation; Packaging instructional materials

- Remote on-line searching

- Scisearch workshop; On-line library systems (ORBIT, etc)

- Copyright; Children's Services; AACR-II

- Computer programming for bibliographical application; Computer based reference services

- LSC 733; The new technologies in libraries

- Presentations at ALA-Libraries and Growth of knowledge; Prospects for change; Bibliographical control; Public libraries-circumstances and prospecs

- Aacr2: Bibliometrics (workshops)

- On-line searching for Librarians and Educators; Microcomputers; Paperless Library.

- OCLC for non-OCLC users; On-Line literature searching; Video-Production Techniques; Planning and Productive A-V Presentations; Machine-readable Social Data.

- Book distribution Systems
- Networking; OCLC; On-Line Retrieval Courses and Seminars
- On-line Searching; School Media Center Management; Production of Graphics Materials
- On-Line Reference Services
- Computer applications for Librarians
- On-Line literature searching;
  Introduction to Legal Materials;
  Conference on Media Sources;
  Conference on Business Ad. Services and Sources
- On-line seaxching
- On-line searching; AACRII
- On-line workshop; Data Bases; Excerpt Medice
- Workshop on Dialog
- Introduction to on-line series; Data Base Construction; Index and Thesarus Construction
- On-line data base searching; Automated circulation systems
- Course Offerings
- Evaluation techniques for librarians; On-line reference sources
- Micrographics; Programming courses; Measures of Librarian effectiveness; Micro computers in libraries; Information for school media specialists
- On-line searching
- Data base searchings; Curriculum instruction and design
- Data Base training
- On-line training; Annual Pgh Conference, On-Line revolution in libraries; Structure and Governance of Library Networks; Cable TV and libraries; cataloging update
- Computers-a non-technical introduction for librarians; Word-processing applications; Computers for Libraries and Information centers
- Partnership for the 80's-networking and utilization of technology
- System analysis; Computer application in Libraries
- MARC & OCLC Workshops; Library automation institute
- New technology for information transfer (video facsimile, videotext, computer conferencing); Introduction to numeric data base; Data base management; Microforms

- Computerized cataloging; Congress on networking
- CAI; Use of computer terminal for on-line searching; Utilization of new medias; Use of instructional T.V.
- On-line data base searching; Institute on library automated circulation systems; OCLC Training; Institute on Quantitative measurement and dynamic library services
- Media creativity workshop
- Workshop on-line services; Workshop on energy and environmental materials
- Video production; On-line information retrieval; Media Production
- Computer Processes for school media centers; On-line search skills
- On-line searching; Statistics, including SPSS and other use of automated equipment
- Records management; OCLC
- Computer-based reference services
- New techniques of on-line searching
- Microcomputers; Automation Data Processing: AACR-11
- Automation and the Libraries; On-line searching; Introduction to information science and technology
- Computer application to library services; On-line searching; A-V workshops
- Workshop on OCLC

QUESTION: Do you have plans to change your program to prepare students for work in technological environment?

DESCRIPTION

- Networking and CMI
- Expand A-V technology
- Networking; On-line search; Incorporate OCLC and RLIN in
- Cataloging courses; Develop emulator program
- Increase emphasis on information management
- Upgrading facilities Develop new courses; Revise existing courses
- Increased emphasis on technological advances and info. processing
- Continual development of courses and emphasis in courses on impact of automation and Library Science

- Increased contact and exposure to application of computer aids in information searching
- More emphasis on quantitative methods of analysis; School already has a good record in applied information science
- More integration in use of technology equipment
- Continued course revision and faculty development
- Name change recommended; Faculty redevelopment
- More aggressive counseling and recruitment
- New courses in data processing in microcomputer area
- Dialogue underway re changes, influence by job market prospects
- Revision of courses
- Constant concern of curriculum committee
- Curriculum revision to consider technological changes
- Addition of BALLOTS/RLIN in Training mode; Adding a micro-computer
- But keep aware of what's going on and what 'we' can do
- Additional courses in data base searching; Prospective conference on indexing for archives
- Reviewing curriculum
- Curriculum review
- Indirect through faculty development project; Examination of new markets
- New courses in compute utilization
- Increased work with OCLC, BRS, Non-print media
- New program in information resources management
- More experience in various uses of computers and application of information science; Greater emphasis on on-line environment
- Curriculum change to prepare students for entry or advancement to a majority of ASIS list of information positions
- Curriculum review to strengthen this area
- Change of name and other revisions under study
- Perhaps; there will be a new director in 1981
- Presently interviewing for position to assist students to work in technology environment

QUESTION: Are students prepared to work in setting other than library?

DESCRIPTION

- School media services; TV and Radio Production
- Management and information systems
- Archeological firm; law office; newspaper; Insurance co.
- Planning groups; Industry; Social services; Education
- Information center management; Information management in nonlibrary setting
- Any kind of environment involving creation, maintenance and access to files
- Technical information centers
- Wherever information control and dissemination needed
- Industry; State, federal information systems
- Researchers; Information specialists; Information brokers; Indexers; Industry; Publishing; government
- Abstracting; Indexing; Editing; System analyst; Computer programming; reprographics
- Information industry; information broker
- Bibliographic utilities; Information searching
- Independent brokers; Administrative aides; Processing of policy in HEW; Editing, Publishing
- Industrial research; Software development; Project management; Setting up information centers in research corporations
- Systems analyst; Information system design
- Information brokerage; Records management; Subject bibliographers
- Information analyst; Information manager
- Information broker; Special libraries
- Times Information Bank; OCLC; Westinghouse legal support system
- Records manager; Data base transfers; Information system design; System analyst
- Info center; Publishing; Media ctr; Cataloguing; Utilities
- Data base management; Info system analysis; Indexing and abstracting Networks; Information industry

- Already happening-Indexing; Editing; Major computerized bibliographic search
- Information stores; Electronic industry
- Information brokers; Editing; Indexing
- Gov't agencies with information related activity
- Information management
- Publishing; TV; Media Production
- They are now; Systems analyst; Records manager; Information system programmer; 40% go into non-library work
- Research groups; Records and information manager in industry or government service; Any information environment
- Record management
- 'Information management' now under study
- CRecord centers; Archives; Information services; Consultant
- Classrooms; Instruction providing educational experiences; Social agencies providing information; Networking centers
- Settings using skills in information needs assessment, resource collection and development, bibliographic access; Information counselling
- Information centers; Special libraries

QUESTION: Have recent graduates been placed in non-library setting?

EXAMPLES

- Inventory control-Champion Paper
- Bookstores
- Fisher control; Ball corp; Methodist Hospital
- R and D in energy and computers
- Publishers; Data base retrieval co.
- Indexing firms; Management firms; Independent consultatn to industry
- Legal Research Assistant; Records management
- Publishing; Banks; Government agencies
- IBM; Information management Services; SCD; Information handling; Blackwell
- Computer programmer; Data base analyst; Baker and Taylor acquisition system

- Data processing in business setting
- Private industry; Publishing; Newspaper
- Book co; Free lance consultant
- Editorial; Legal; Applied Information Science in Libraries
- Information specialist for newspapers and marketing firms
- Photo archive: Information broker; On-line data base manager for a computer co.
- Manufacturing; Banks; Publisher; Sales representative
- Own information search firms
- Teaching; Working in business world
- Bookstore coordinator; Librarian archivist to archeologist Legal document analyst; Librarian for Congressional Quarterly; Librarian with National Power Team of Researchers; Coordinator for research information and publication
- Information broker; Information management; Consultant to data base vendor; Urban data analyst; Community information coordinator
- Information analyst, Brooke Chemical; IBM technical information retrieval center, information analyst.
- Development office; Batille Memorial Institute
- Information specialist or broker
- Market Researcher; Data base trainer
- Research center in oil co; Publishing houses
- Information center; Media center; Utilities
- Manager of info services; N.J. education computer network; Research ass't; RCA Video disk project; Ass't programmer for remote computer service division; Information Sc. system;
- Information broker-Warner Edison Assoc.
- CIA; Bank
- Corporation, an info manager; Work with CLASS, OCLC, UDC, NICEM, NIAK
- Publishing; TV
- Internal information liaison (T.V.A.) between researchers and information sources; Chemistry information specialist in 4 person research group; Environmental center information specialist
- Indexer; Technical writer; System analyst; Bibliographic searcher

- General Dynamics-film department
- Federal institute; Adm. ass't with responsibility for information searching
- Publishing; Free lance information services; Archives; Historical museums
- Kalamazoo Nature Center-adm. ass't; Teachers; Director-labor cooperative; Information specialist - committee on aging Administrative assistant - university
- Indexer on legal information system project; Research analyst for brokerage firm; Information and referral consultation in research center; Archivist; Publisher

APPENDIX F

CROSSTABULATIONS ON ADJECTIVE PAIRS: STUDENT SURVEY

Following are crosstabulations for each adjective pair with the Resistance Index by school for those items that showed significant relationships.

School Code: 07

Pair B

RESIST GROUP	OPEN	CLOSED
HIGH	91.7	8.3
MED	72.4	27.6
LOW	47.1	52.9

valid cases: 58/Missing: 1
gamma: .60 Sig: .05

School Code: 15

Pair D

RESIST GROUP	SOCIAL	ISOLATING
HIGH	63.6	36.4
MED	14.3	85.7
LOW	11.1	88.9

valid cases: 27/Missing: 1
gamma: .77 Sig. .05

Pair E

RESIST GROUP	RESTRICTIVE	PERMISSIVE
HIGH	20.0	80.0
MED	75.0	25.0
LOW	66.7	33.3

valid cases: 23/Missing: 5
gamma: -.64 Sig. .06

School Code: 20

Pair C

RESIST GROUP	INNOVATIVE	TRADITIONAL
HIGH	29.4	70.6
MED	45.2	54.8
LOW	72.7	27.3

valid cases: 70/Missing: 3
gamma: -.52 Sig. .05

School Code: 22

Pair B

RESIST GROUP	OPEN	CLOSED
HIGH	87.1	12.9
MED	80.8	19.2
LOW	55.0	45.0

valid cases: 77/Missing: 3
gamma: .51 Sig: .05

Pair D

RESIST GROUP	SOCIAL	ISOLATING
HIGH	80.6	19.4
MED	65.4	34.6
LOW	42.9	57.1

valid cases: 78/Missing: 2
gamma: .51 Sig. .05

School Code: 66

Pair A

RESIST GROUP	PARTICIPATORY	AUTHORITARIAN
HIGH	10.0	90.0
MED	29.2	70.8
LOW	30.2	69.8

valid cases: 165/Missing: 5
gamma: -.36 Sig. .05

Pair D

RESIST GROUP	SOCIAL	ISOLATING
HIGH	78.0	22.0
MED	63.9	36.1
LOW	82.9	17.1

valid cases: 163/Missing: 7
gamma: -.05 Sig. .06

School Code: 82

Pair A

RESIST GROUP	AUTHORITARIAN	PARTICIPATORY
HIGH	36.4	63.6
MED	26.5	73.5
LOW	61.1	38.9

valid cases: 85/Missing: 1
gamma: -.22 Sig. .05

Pair E

RESIST GROUP	RESTRICTIVE	PERMISSIVE
HIGH	39.4	60.6
MED	29.4	70.6
LOW	66.7	33.3

valid cases: 85/Missing: 1
gamma: -.24 Sig. .05

School Code: 88

Pair A

RESIST GROUP	AUTHORITARIAN	PARTICIPATORY
HIGH	12.5	87.5
MED	21.2	78.8
LOW	42.9	57.1

valid cases: 77/Missing: 3
gamma: -.49 Sig. 06

Pair B

RESIST GROUP	OPEN	CLOSED
HIGH	94.1	5.9
MED	97.0	3.0
LOW	62.2	30.8

valid cases: 76/Missing: 4
gamma: .71 Sig. .01

Pair C

RESIST GROUP	INNOVATIVE	TRADITIONAL
HIGH	64.7	35.3
MED	72.7	27.3
LOW	42.9	57.1

valid cases: 78/Missing: 2
gamma: .34 Sig. .05

Pair E

RESIST GROUP	RESTRICTIVE	PERMISSIVE
HIGH	20.0	80.0
MED	16.1	83.9
LOW	46.2	53.8

valid cases: 72/Missing 8
gamma: -.46 Sig. .05

School Code: 90

Pair E

RESIST GROUP	RESTRICTIVE	PERMISSIVE
HIGH	11.1	88.9
MED	14.3	85.7
LOW	60.0	40.0

valid cases: 33/Missing: 5
gamma: -.70 Sig. .05

APPENDIX G

RESULTS OF ANALYSIS OF FACULTY RESISTANCE ACROSS SCHOOL ADJECTIVE PAIRS/RESISTANCE BY SCHOOLS FACULTY

SCHOOL CODE	SAMPLE SIZE (TOTAL NUMBER OF RESPONSES)	PAIR A					PAIR B					PAIR C					PAIR D					PAIR E					NUMBER OF SIGNIFICANT PAIRS
		AUTHORITARIAN	PARTICIPATORY	GAMMA	SIGNIFICANCE	SAMPLE SIZE for item	OPEN	CLOSED	GAMMA	SIGNIFICANCE	SAMPLE SIZE for item	INNOVATIVE	TRADITIONAL	GAMMA	SIGNIFICANCE	SAMPLE SIZE for item	SOCIAL	ISOLATING	GAMMA	SIGNIFICANCE	SAMPLE SIZE for item	RESTRICTIVE	PERMISSIVE	GAMMA	SIGNIFICANCE	SAMPLE SIZE FOR ITEM	
07	6	67	33			6	83	17	1.0	.05	6	67	33			6	83	17	1.0	.05	6	60	40			5	2
11	14	83	17			9	79	21			14	92	8			13	50	50			10	9	91	-1.0	.00	11	1
28	6	80	20	1.0	.60*	5	67	33			6	17	83			6	67	33			6	33	67			6	1
47	11	90	10	1.0	.70*	10	90	10	1.0	.70*	10	82	18	1.0	.38*	11	70	30	-.11	.71*	10	9	91	-1.0	.64*	11	5
49	7	67	33			6	83	17	1.0	.50*	6	43	57			7	17	83	-1.0	.50*	6	33	67	0.0	1.0*	6	3
57	5	80	20			5	75	25	1.0	.75*	4	60	40	1.0	.60*	5	80	20			5	25	75	-1.0	.75*	4	3
64	5	40	60	-.33	.70*	5	75	25	-1.0	.75*	4	20	80	-1.0	.40*	5	80	20	-1.0	.80*	5	20	80	1.0	.60*	5	5
66	25	72	28			25	84	16			25	67	33	.83	.01	24	64	36			22	9	91	-1.0	.01	23	2
70	9	88	12			8	89	11			9	50	50			8	71	29	-.20	.71*	7	0	100			7	1
79	10	89	11	1.0	.33*	9	100	0			9	100	0			10		0			9	0	100			9	1
85	5	40	60			5	40	60	1.0	.60*	5	0	100			5	75	25			4	20	80	-1.0	.20*	5	2
90	6	83	17	1.0	.83*	6	83	17	1.0	.83*	6	50	50	-1.0	.50*	6	83	17	1.0	.83	6	50	50	1.0	.50*	6	4
92	10	90	10	1.0	.70*	10	70	30	-.85	.18*	10	10	90	-1.0	.70*	10	70	30	-.85	.18	10	11	89	1.0	.33*	9	5
						6					8					6										9	

*Fisher

DISTRIBUTION MEDIANS OF FACULTY RESISTANCE INDEX
BY SCHOOLS

SCHOOL CODE	MEDIAN	SCHOOL CODE	MEDIAN	SCHOOL CODE	MEDIAN
07	27.5	37	28.0	68	25.0
11	28.5	39	26.5	70	34.0
13	27.3	45	26.5	73	25.2
17	30.0	47	30.5	75	-
20	29.5	49	32.0	79	26.0
22	24.0	51	28.5	82	25.0
26	28.0	56	31.0	85	27.0
28	30.5	61	33.0	88	34.5
31	27.5	64	22.2	90	28.5
34	27.0	66	27.0	92	29.2

SCHOOLS SHOWING SIGNIFICANT RELATIONSHIPS BETWEEN PERCEPTIONS OF ENVIRONMENT AND RESISTANCE: STUDENT AND FACULTY SURVEYS

SCHOOL CODE	NUMBER OF PAIRS SHOWING SIGNIFICANCE		
	STUDENT SURVEY	FACULTY SURVEY	OVERLAP BOTH SURVEYS
07	1	2	X
11		1	
15	2		
20	1		
22	2		
28		1	
47	3	5	X
49		3	
56	4		
57		3	
64		5	
66	2	2	X
70		1	
79		1	
82	2		
85		2	
88	4		
90	1	4	X
92		5	